

# Фотодатчики PP/PS/EX, A3, E3, M18, MS, SU, F, RTM, AS, E2/PH, LT M30

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# FOTEK

Think To Make More Easy & Efficient

# Photoelectric sensor

# 光電傳感器



CE RoHS



**PP series Plate type / 薄型**



**PS series Slim type / 扁型**

**CE RoHS**

※ More compact & stability & reliability

※ Suitable for installation in narrow space

## General data / 共同規格

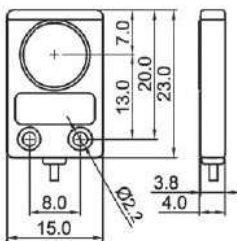
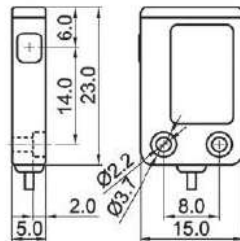
| Specification       | 規格   | Data                                                                                                                    |
|---------------------|------|-------------------------------------------------------------------------------------------------------------------------|
| Operating voltage   | 工作電壓 | 10 ~ 30 VDC                                                                                                             |
| Current consumption | 耗電流  | 30mA max.                                                                                                               |
| Output current      | 輸出電流 | 150 mA max.                                                                                                             |
| Response time       | 反應時間 | 5 ms max.                                                                                                               |
| Protection circuit  | 保護回路 | Short circuit & polarity reversed                                                                                       |
| Voltage drop        | 輸出壓降 | 0.8V max.                                                                                                               |
| Residual voltage    | 殘餘電壓 | 0.1V max.                                                                                                               |
| Leakage current     | 洩漏電流 | 0.1mA max.                                                                                                              |
| EMC Immunity        | 電磁相容 | ESD : 8 KV Air Discharge (Level3) / EN-61000-4-2 : RF Interference 10V / M / ENV-50140 : Burst test : 2KV / EN61000-4-4 |
| Protection class    | 保護等級 | IP-65                                                                                                                   |
| Approval            | 安規   | CE / RoHS                                                                                                               |
| Illumination        | 耐外亂光 | Sunlight > 20,000 Lux. : Lamplight > 5,000 Lux.                                                                         |
| Operating temp      | 使用環境 | - 20°C ~ +80°C : 35 ~ 85%RH                                                                                             |
| Housing material    | 外殼材質 | ABS (UL-94V0) : Lenz : PC                                                                                               |

## Output circuit / 輸出回路

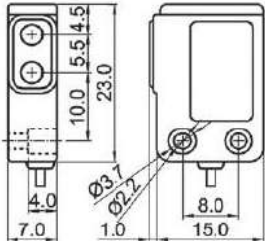
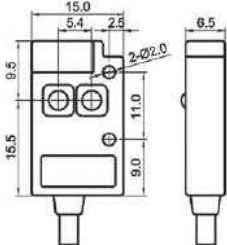
| NPN     | PNP     |
|---------|---------|
|         |         |
| BR-EX-1 | BR-EX-2 |
|         |         |

## ● Model / 型號

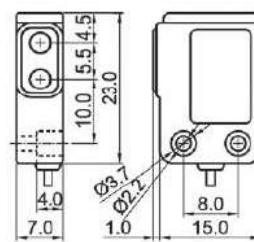
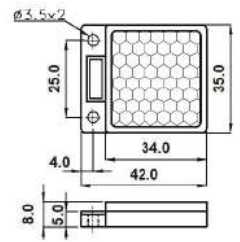
### ※ Thru beam type

|                  |       |                                                                                   |          |         |          |                                                                                     |          |         |          |
|------------------|-------|-----------------------------------------------------------------------------------|----------|---------|----------|-------------------------------------------------------------------------------------|----------|---------|----------|
| Shape            | 外型    | Plate /薄型                                                                         |          |         |          | Slim /扁型                                                                            |          |         |          |
| Model            | 型 號   | PPT-60N                                                                           | PPT-60NB | PPT-60P | PPT-60PB | PST-60N                                                                             | PST-60NB | PST-60P | PST-60PB |
| Output status    | 輸出狀態  | NO                                                                                | NC       | NO      | NC       | NO                                                                                  | NC       | NO      | NC       |
| Output method    | 輸出方式  | NPN                                                                               |          | PNP     |          | NPN                                                                                 |          | PNP     |          |
| Light source     | 發射光源  | Infrared LED                                                                      |          |         |          |                                                                                     |          |         |          |
| Sensing distance | 檢測距離  | 60cm                                                                              |          |         |          |                                                                                     |          |         |          |
| Sensible object  | 最小檢測物 | Non-transparent object 5.0Φ min                                                   |          |         |          |                                                                                     |          |         |          |
| Connection       | 出 線   | Rx : 2.5Φ/3C-2m : Tx : 2.5Φ/2C-2m                                                 |          |         |          |                                                                                     |          |         |          |
| Dimension        | 外形尺寸  |  |          |         |          |  |          |         |          |

### ※ Reflex type

|                  |      |                                                                                     |          |         |          |         |          |         |          |                                                                                       |        |              |  |
|------------------|------|-------------------------------------------------------------------------------------|----------|---------|----------|---------|----------|---------|----------|---------------------------------------------------------------------------------------|--------|--------------|--|
| Shape            | 外型   | Slim /扁型                                                                            |          |         |          |         |          |         |          |                                                                                       |        |              |  |
| Model            | 型號   | PSR-05N                                                                             | PSR-05NB | PSR-05P | PSR-05PB | PSR-10N | PSR-10NB | PSR-10P | PSR-10PB | EX-01N                                                                                | EX-03N | EX-07N       |  |
| Output status    | 輸出狀態 | NO                                                                                  | NC       | NO      | NC       | NO      | NC       | NO      | NC       | NO                                                                                    |        |              |  |
| Output method    | 輸出方式 | NPN                                                                                 |          | PNP     |          | NPN     |          | PNP     |          | NPN                                                                                   |        |              |  |
| Sensing distance | 檢測距離 | 5 cm                                                                                |          |         |          | 10 cm   |          |         |          | 1.0 cm                                                                                | 2.5 cm | 5.0 cm       |  |
| Light source     | 發射光源 | Red LED                                                                             |          |         |          |         |          |         |          |                                                                                       |        | Infrared LED |  |
| Connection       | 出線   | 2.5Φ/3C-2m                                                                          |          |         |          |         |          |         |          |                                                                                       |        |              |  |
| Dimension        | 外形尺寸 |  |          |         |          |         |          |         |          |  |        |              |  |

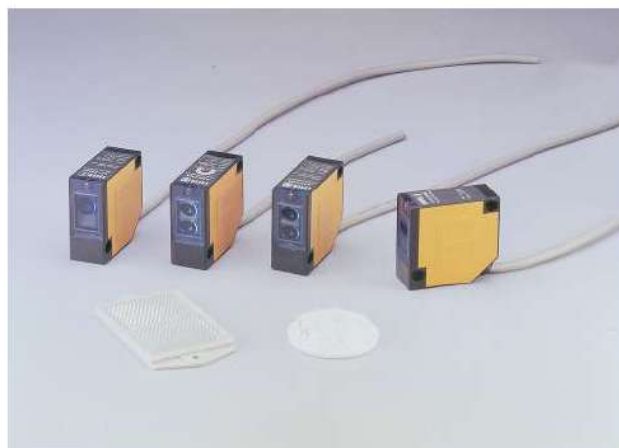
### ※ Mirror Reflex type

|                  |      |                                                                                     |          |         |          |                                                                                       |          |         |          |
|------------------|------|-------------------------------------------------------------------------------------|----------|---------|----------|---------------------------------------------------------------------------------------|----------|---------|----------|
| Shape            | 外型   | Slim /扁型                                                                            |          |         |          |                                                                                       |          |         |          |
| Model            | 型號   | PSG-20N                                                                             | PSG-20NB | PSG-20P | PSG-20PB | PSG-60N                                                                               | PSG-60NB | PSG-60P | PSG-60PB |
| Output status    | 輸出狀態 | NO                                                                                  | NC       | NO      | NC       | NO                                                                                    | NC       | NO      | NC       |
| Output method    | 輸出方式 | NPN                                                                                 |          | PNP     |          | NPN                                                                                   |          | PNP     |          |
| Sensing distance | 檢測距離 | 20 cm                                                                               |          |         |          | 60 cm                                                                                 |          |         |          |
| Attachment       | 配件   | non                                                                                 |          |         |          | MR-2                                                                                  |          |         |          |
| Light source     | 發射光源 | Red LED                                                                             |          |         |          |                                                                                       |          |         |          |
| Connection       | 出線   | 2.5Φ/3C-2m                                                                          |          |         |          |                                                                                       |          |         |          |
| Dimension        | 外形尺寸 |  |          |         |          |  |          |         |          |

## ● Notice of using / 使用注意事項

- 請勿使用溶劑擦拭傳感器鏡頭。(Please do not clean the Lenz with solvent.)
- 請勿安裝在有腐蝕性氣體的環境。(Please do not install in the corrosive circumstance.)
- 避免太陽光或螢光燈直接照射接收器。(Please do not directly expose products under fluorescent lamp or sunlight)

- ※ Extensive operating voltage  
12VDC or 20 ~ 260VAC/ VDC
- ※ High capacity relay output 3A/250VAC
- ※ High compact structure IP-65
- ※ Multi surge killer circuit effectively  
protects from surge damage
- ※ B type ( Normal close type )  
have no stock maybe ,  
accepted order to manufacture  
Model : A3R-30XB , A3R-1MXB , A3R-2MXB  
A3G-2MRB , A3G-4MXB  
A3T-10MXB , A3T-20MXB
- ※ Polarityzd Mirror Relylexyre  
(A3G-4MRE)Reflex type available



## General Specification

| Specification        | Data                                                                                                                                                                                    |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operating Voltage    | 20 ~ 260V DC/AC, 12VDC Customization, 50/60Hz                                                                                                                                           |
| Current Consumption  | 2VA max.                                                                                                                                                                                |
| Output Method        | Relay                                                                                                                                                                                   |
| Contact Current      | 5A/250 VAC                                                                                                                                                                              |
| Response Time        | 15ms                                                                                                                                                                                    |
| Illumination         | Lamplight < 10,000 Lux. ; Sunlight < 30,000 Lux.                                                                                                                                        |
| Connection Method    | 5 Cores / 6.0 φ X 2m                                                                                                                                                                    |
| Noise Resistance     | 1500Vp - p/1 μS                                                                                                                                                                         |
| Surge Resistance     | 2 KV/1 μ S                                                                                                                                                                              |
| Vibration Resistance | 10~55Hz / 1.5mm , 2 Hour In X.Y.Z. Direction                                                                                                                                            |
| Housing Material     | Case : Intensive ABS ; Lens : PC                                                                                                                                                        |
| Operating Temp./Hum. | -20 C ~ +60 C ; 35% ~ 85% RH                                                                                                                                                            |
| Connection Diagram   | <p>Connection diagram</p> <p>Main Circuit</p> <p>Red (Brown) [20~260V DC/AC]<br/>Black (Blue) [12VDC Customization]<br/>White (Black) NO<br/>Brown (White) COM<br/>Yellow (Grey) NC</p> |

## Reflex Type

| Type                 | Standard Type                                 |         |         | Water-Proof Type |          |          |
|----------------------|-----------------------------------------------|---------|---------|------------------|----------|----------|
| Model                | A3R-30X                                       | A3R-1MX | A3R-2MX | A3R-30XP         | A3R-1MXP | A3R-2MXP |
| Sensing Distance     | 30cm                                          | 100cm   | 200cm   | 30cm             | 100cm    | 200cm    |
| Protection Class     | IP-65                                         |         |         | IP-67            |          |          |
| Operating Voltage    | 20 ~ 260V DC/AC, 12VDC Customization, 50/60Hz |         |         |                  |          |          |
| Output Method        | Relay                                         |         |         |                  |          |          |
| Output Status        | NO. <Received ON >                            |         |         |                  |          |          |
| Sensitivity Adjuster | 270° Trimmer                                  |         |         |                  |          |          |
| Emitter              | Infrared LED                                  |         |         |                  |          |          |
| Min. Sensible Object | 5.0 φ                                         |         |         |                  |          |          |
| Weight               | Appr.145g                                     |         |         | Appr.155g        |          |          |

## Mirror Reflex Type

| Type                 | Standard Type                                 |          |          |              | Water-Proof Type |              |
|----------------------|-----------------------------------------------|----------|----------|--------------|------------------|--------------|
| Model                | A3G-2MR                                       | A3G-2MRS | A3G-4MRE | A3G-4MX      | A3G-2MRP         | A3G-4MXP     |
| Sensing Distance     | 3m                                            | 2m       | 4m       | 4m           | 3m               | 4m           |
| Emitter              | Red LED                                       | Red LED  | Red LED  | Infrared LED | Red LED          | Infrared LED |
| Sensing Adjuster     | Trimmer                                       | Without  |          |              | Trimmer          | Without      |
| Protect Class        | IP-65                                         |          |          |              | IP-67            |              |
| Operating Voltage    | 20 ~ 260V DC/AC, 12VDC Customization, 50/60Hz |          |          |              |                  |              |
| Output Method        | Relay                                         |          |          |              |                  |              |
| Output Status        | NO. < Break ON >                              |          |          |              |                  |              |
| Min. Sensible Object | 2.0φ                                          |          | 5.0 φ    |              | 2.0 φ            | 5.0 φ        |
| Weight               | Appr.145g                                     |          |          |              | Appr.155g        |              |

## Thru Beam Type

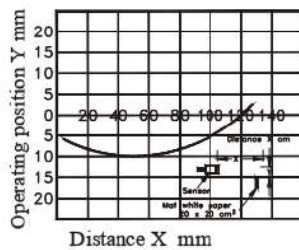
| Type                 | Standard Type                                 |          |          | Water-Proof Type |           |           |
|----------------------|-----------------------------------------------|----------|----------|------------------|-----------|-----------|
| Model                | A3T-3MX                                       | A3T-10MX | A3T-20MX | A3T-3MXP         | A3T-10MXP | A3T-20MXP |
| Sensing Distance     | 3m                                            | 10m      | 20m      | 3m               | 10m       | 20m       |
| Protection Class     | IP-65                                         |          |          | IP-67            |           |           |
| Operating Voltage    | 20 ~ 260V DC/AC, 12VDC Customization, 50/60Hz |          |          |                  |           |           |
| Output Method        | Relay                                         |          |          |                  |           |           |
| Output Status        | NO. < Break ON >                              |          |          |                  |           |           |
| Emitter              | Infrared LED                                  |          |          |                  |           |           |
| Sensitivity Adjuster | Without                                       |          |          |                  |           |           |
| Min. Sensible Object | 2.0φ                                          | 5.0 φ    | 10.0φ    | 2.0φ             | 5.0φ      | 10.0φ     |
| Weight               | Appr.285g                                     |          |          | Appr.305g        |           |           |

## Characteristic Curve < Typical >

Diffuse Reflex type

A3R-1MX

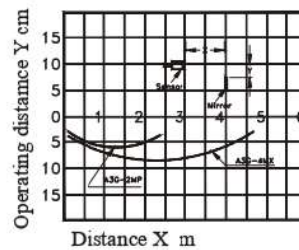
Sensing area



Mirror Reflex type

A3G-2MR/A3G-4MX

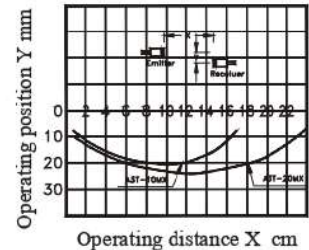
Setting range



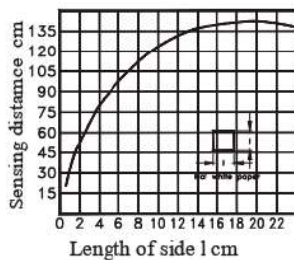
Thru Beam type

A3T-10MX/A3T-20MX

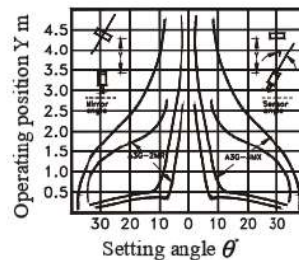
Setting range



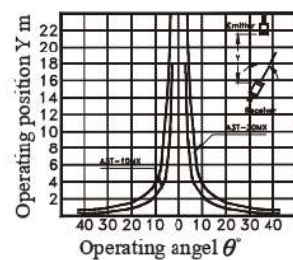
Sensing area



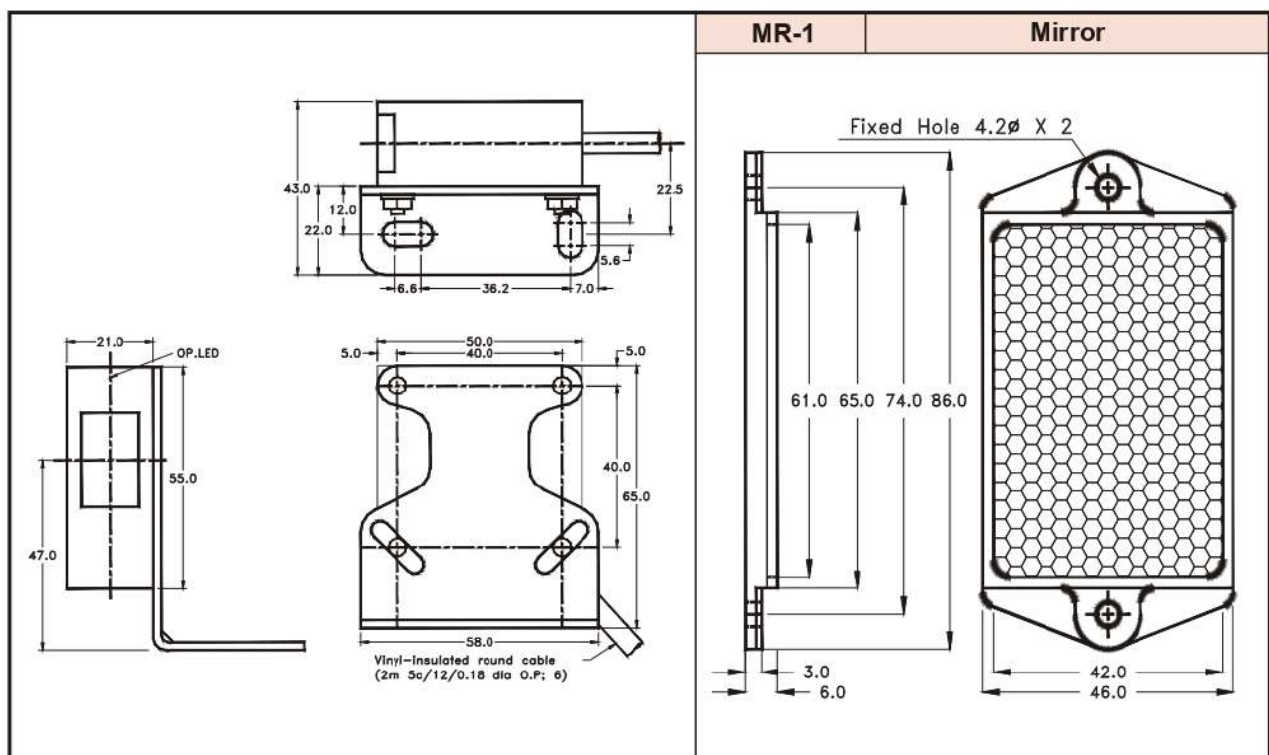
Setting angle



Setting angle



## Dimension



## ※ Extensive operating voltage

- 12 ~ 250 VAC / DC

## ※ Longer sensing distance

- Thru bean type : 30 m

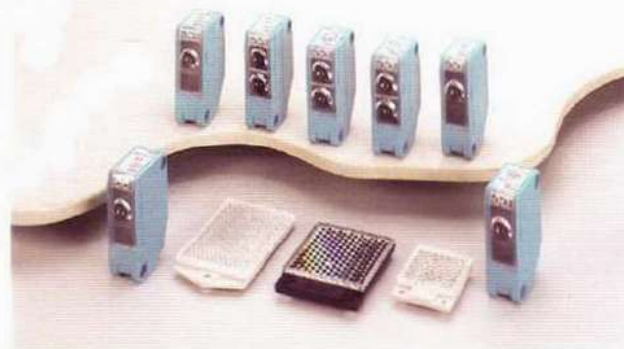
- Mirror reflex type : 8 m

## ※ High compact structure

- IP-66

## ※ Multi-protection circuit

- Burst test over 2kv



## ■ General Specification / 共同規格

| Specification          | 規格     | Data                                                                                                                                       |
|------------------------|--------|--------------------------------------------------------------------------------------------------------------------------------------------|
| Operating voltage      | 工作電壓   | 20~260VAC / DC                                                                                                                             |
| Current consumption    | 消耗電流   | 2VA max.                                                                                                                                   |
| Output method          | 輸出方式   | relay ( 1c )                                                                                                                               |
| Contact rated          | 接點額定電流 | 1A / 250VAC ; 2A / 30VDC ( Resistance load )                                                                                               |
| Life of relay          | 繼電器壽命  | Electronic : 10 <sup>6</sup> times ; Mechanic : 10 <sup>5</sup> times                                                                      |
| Response time          | 應答時間   | 10 ms max.                                                                                                                                 |
| Illumination           | 耐外亂光   | lamplight < 10,000 Lux ; Sunlight < 30,000 Lux                                                                                             |
| Connection method      | 出線方式   | 5φ / 6φ 2m cable ; oil proof                                                                                                               |
| Insulation resistance  | 絕緣阻抗   | 100MΩ / 500VDC                                                                                                                             |
| Dielectric strength    | 電介強度   | 2.5KV / 1 minute min.                                                                                                                      |
| EMC standard           | EMC標準  | ESD : 8 KV air discharge ( level 3 ) / EN-61000-4-2<br>RF interference : 10V / M / ENV-50140<br>Burst test : 2KV / EN-61000-4-4            |
| Vibration resistance   | 耐震動    | 10 ~ 55Hz / 1.5 mm, 2 hours in XYZ direction                                                                                               |
| Housing material       | 外殼材質   | Intensive ABS                                                                                                                              |
| Protection class       | 保護等級   | IP-66                                                                                                                                      |
| Operating circumstance | 使用環境   | - 20°C ~ + 60°C ; 35% ~ 85% RH                                                                                                             |
| Connection diagram     | 接線圖    | <div> Sensor <div> Brown 棕 ——— ○ ~ +<br/> Blue 青 ——— ○ ~ -<br/> Black 黑 ——— ○ NO<br/> White 白 ——— ○ Com<br/> Grey 灰 ——— ○ NC </div> </div> |

# 自由電源型光電開關 Free Power Photo Sensor



## E3/M3 Series

### ■ Reflex type / 擴散反射型

| Type                 | 型式    | Standard type                |          | Timer type                         |          |
|----------------------|-------|------------------------------|----------|------------------------------------|----------|
| Model                | 型號    | E3R-60X                      | E3R-60XB | M3R-60X                            | M3R-60XB |
| Output status        | 輸出狀態  | NO                           | NC       | NO                                 | NC       |
| Output delay         | 輸出延遲  | Without                      |          | Off delay ( 0 ~ 1 sec adjustable ) |          |
| Emitter              | 發射光源  | Infrared LED                 |          |                                    |          |
| Sensing distance     | 檢測距離  | 600.0mm                      |          |                                    |          |
| Hysteresis           | 復歸應差  | 20% of sensing distance max. |          |                                    |          |
| Sensible object      | 最小檢測物 | 10 $\phi$ min.               |          |                                    |          |
| Sensitivity adjuster | 感度調整  | 270° trimmer                 |          |                                    |          |

### ■ Mirror reflex type / 鏡片反射型

| Type                     | 型式    | Standard type  |          | Timer type                       |          |
|--------------------------|-------|----------------|----------|----------------------------------|----------|
| Model                    | 型號    | E3G-8MX        | E3G-8MXB | M3G-8MX                          | M3G-8MXB |
| Output status            | 輸出狀態  | NO             | NC       | NO                               | NC       |
| Output delay             | 輸出延遲  | Without        |          | On delay ( 0 ~ 1sec adjustable ) |          |
| Emitter                  |       | Infrared LED   |          |                                  |          |
| Sensing distance<br>檢測距離 | MR-1  | 8.0 m min.     |          |                                  |          |
|                          | MR-2  | 4.0 m min.     |          |                                  |          |
|                          | MR-3  | 12.0 m min.    |          |                                  |          |
| Sensible object          | 最小檢測物 | 10 $\phi$ min. |          |                                  |          |
| Sensitivity adjuster     | 感度調整  | non            |          |                                  |          |

### ■ Polarized mirror reflex type / 偏光式鏡片反射型

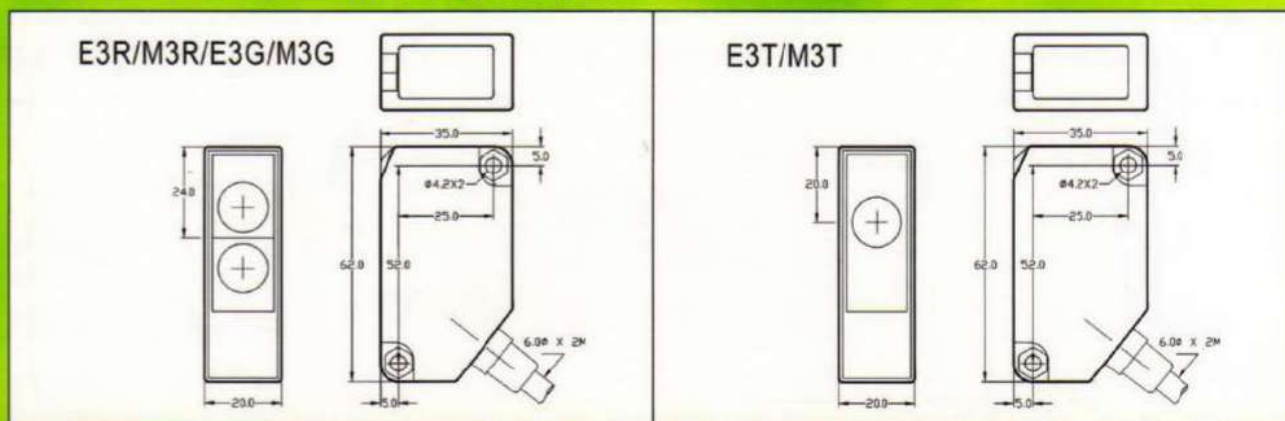
| Type                     | 型式    | Standard type  |           | Timer type                       |           |
|--------------------------|-------|----------------|-----------|----------------------------------|-----------|
| Model                    | 型號    | E3G-6MRE       | E3G-6MREB | M3G-6MRE                         | M3G-6MREB |
| Output status            | 輸出狀態  | NO             | NC        | NO                               | NC        |
| Output delay             | 輸出延遲  | Without        |           | On delay ( 0 ~ 1sec adjustable ) |           |
| Emitter                  |       | Red LED        |           |                                  |           |
| Sensing distance<br>檢測距離 | MR-1  | 6.0m min.      |           |                                  |           |
|                          | MR-2  | 3.0m min.      |           |                                  |           |
|                          | MR-3  | 8.0m min.      |           |                                  |           |
| Sensible object          | 最小檢測物 | 10 $\phi$ min. |           |                                  |           |
| Sensitivity adjuster     | 感度調整  | non            |           |                                  |           |

### ■ Thru beam type / 透過型

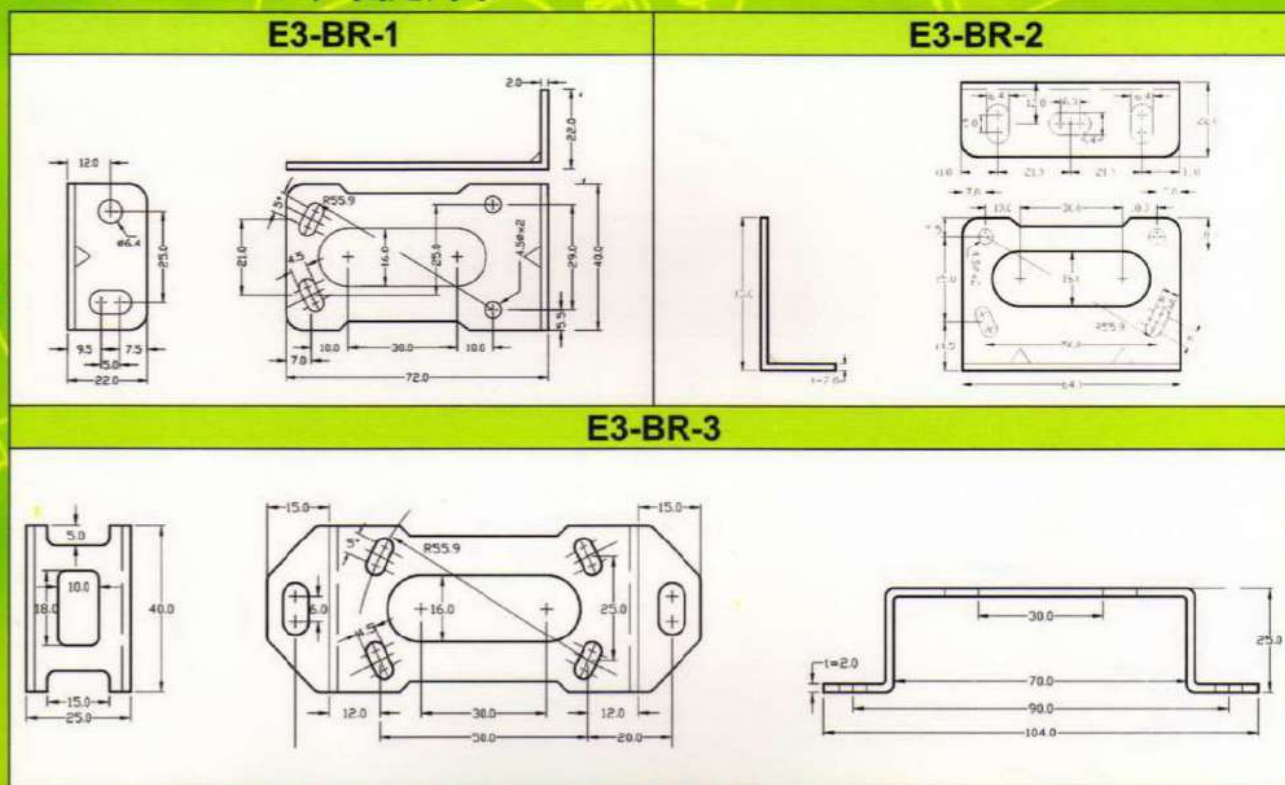
| Type                         | Standard type |           |                |           | Timer type                       |           |
|------------------------------|---------------|-----------|----------------|-----------|----------------------------------|-----------|
| Model                        | E3T-10MX      | E3T-10MXB | E3T-30MX       | E3T-30MXB | M3T-30MX                         | M3T-30MXB |
| Output status                | NO            | NC        | NO             | NC        | NO                               | NC        |
| Output delay                 | non           |           | non            |           | On delay ( 0 ~ 1 sec adjustable) |           |
| Sensing distance             | 12.0 m min.   |           | 32.0 m min.    |           | 32.0 m min.                      |           |
| Sensible object              | 10 $\phi$ min |           | 20 $\phi$ min. |           | 20 $\phi$ min.                   |           |
| With slot / 加裝光柵 ( 5mmx2mm ) |               |           |                |           |                                  |           |
| Sensing distance             | 5.0m          |           | 15.0m          |           | 15.0m                            |           |
| Sensible object              | 5 $\phi$ min  |           | 10 $\phi$ min. |           | 10 $\phi$ min.                   |           |
| Sensitivity adjuster         | non           |           |                |           |                                  |           |

Notes: Sensing Distance 50 m, accepted to manufacture.

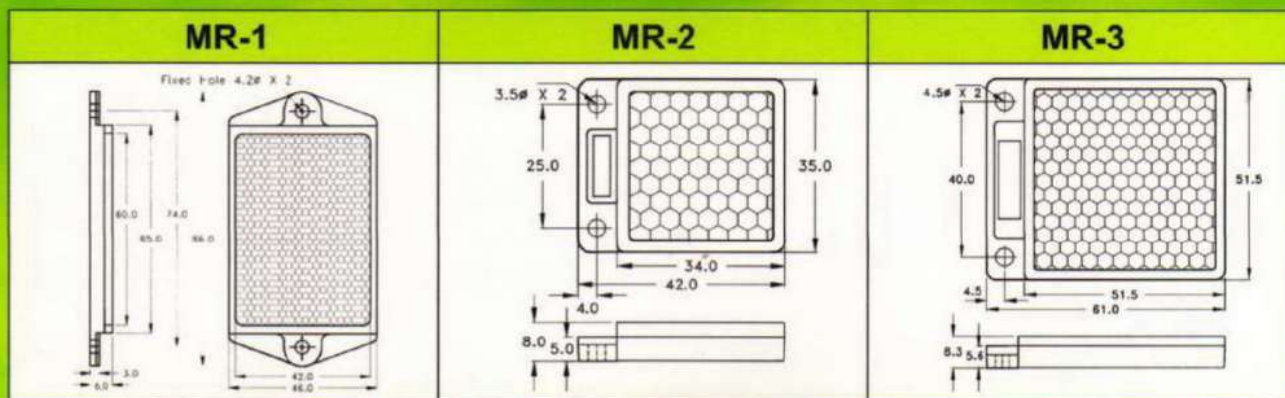
### ■ Outline dimension/外型尺寸



### ■ Fixed bracket／固定角架



## ■ Mirror／反射鏡片



- ※ All type with sensitivity adjuster,  
easy to get the best sensing condition.
- ※ All DC type with NPN & PNP output,  
meet any control requirement.
- ※ All DC type having over load  
protection, and polarity reversed-  
Protection.
- ※ All AC type with surge protection, may  
avoided damaged.
- ※ Unique vertical type saving mounted  
space.
- ※ High solid compact structure, IP66  
applied in poor circumstance suitable.



## ■ Specification

| Power Type           | DC Type                                          | AC Type                         |
|----------------------|--------------------------------------------------|---------------------------------|
| Operating Voltage    | 10 ~ 30 VDC , Ripple < 20% of Vp-p               | 90 ~ 250 VAC , 50/60 Hz         |
| Output Method        | NPN & PNP                                        | SCR                             |
| Output Current       | 150mA max.                                       | 100mA max.                      |
| Residual Voltage     | 0.8V max.                                        |                                 |
| Leakage Current      | 0.8mA max.                                       | 2mA max.                        |
| Protection Circuit   | Short Circuit &<br>Polarity Reversed Protection  | Surge Protection Circuit        |
| Response Time        | 2ms                                              | 10ms                            |
| Sensitivity Adjuster | 270° Trimmer                                     | Non                             |
| Hysteresis           | 10% of Sensing Distance max.                     |                                 |
| Illumination         | Lamplight < 10,000 Lux. ; Sunlight < 30,000 Lux. |                                 |
| Connection Method    | Lead Wire : 4 Cores / 5.0φ X 2m                  | Lead Wire : 3 Cores / 4.2φ X 2m |
|                      | Plug : 4 Pins                                    | Plug : 3 Pins                   |
| Housing Color        | Grey                                             | Blue                            |
| Housing Material     | Intensive Polyimid                               |                                 |
| Operating Temp./Hum. | -20° C ~ +60° C ; 35% ~ 95% RH                   |                                 |
| Protection Class     | IP-66                                            |                                 |
| Weight               |                                                  |                                 |

## ■ Reflex Type

| Type      | Model          | Output Status | Sensing Direction | Sensing Distance | Operating Voltage    | Current Consumption | Output Method           | Sensitivity Adjuster |
|-----------|----------------|---------------|-------------------|------------------|----------------------|---------------------|-------------------------|----------------------|
| Lead Wire | CDR-10X        | NO            | Horizontal        | 10cm             | 10~30VDC             | 25mA max.           | NPN & PNP<br>150mA max. | 270° Trimmer         |
|           | CDR-10XB       | NC            |                   |                  |                      |                     |                         |                      |
|           | CDR-30X        | NO            |                   | 30cm             |                      |                     |                         |                      |
|           | CDR-30XB       | NC            |                   |                  |                      |                     |                         |                      |
|           | CDR-30X-V      | NO            | Vertical          | 30cm             |                      |                     |                         |                      |
|           | CDR-30XB-V     | NC            |                   |                  |                      |                     |                         |                      |
|           | CAR-10X        | NO            | Horizontal        | 10cm             | 90~250VAC<br>50/60Hz | 0.5VA max.          | SCR<br>100mA            | 270° Trimmer         |
|           | CAR-10XB       | NC            |                   |                  |                      |                     |                         |                      |
|           | CAR-10X-V      | NO            | Vertical          | 10cm             |                      |                     |                         |                      |
|           | CAR-10XB-V     | NC            |                   |                  |                      |                     |                         |                      |
| Connector | CDR-10X-M12    | NO            | Horizontal        | 10cm             | 10~30VDC             | 25mA max.           | NPN & PNP<br>150mA max. | 270° Trimmer         |
|           | CDR-10XB-M12   | NC            |                   |                  |                      |                     |                         |                      |
|           | CDR-30X-M12    | NO            | Horizontal        | 30cm             |                      |                     |                         |                      |
|           | CDR-30XB-M12   | NC            |                   |                  |                      |                     |                         |                      |
|           | CDR-30X-V-M12  | NO            | Vertical          | 30cm             |                      |                     |                         |                      |
|           | CDR-30XB-V-M12 | NC            |                   |                  |                      |                     |                         |                      |

## ■ Mirror Reflex Type

| Type      | Model          | Output Status | Sensing Direction | Sensing Distance | Operating Voltage | Current Consumption | Output Method           | Sensitivity Adjuster |
|-----------|----------------|---------------|-------------------|------------------|-------------------|---------------------|-------------------------|----------------------|
| Lead Wire | CDM-1MR        | NO            | Horizontal        | 0.1m~1.6m        | 10~30VDC          | 20mA max.           | NPN & PNP<br>150mA max. | 270° Trimmer         |
|           | CDM-1MRB       | NC            |                   |                  |                   |                     |                         |                      |
|           | CDM-2MX        | NO            |                   | 0.1m~2.5m        |                   |                     |                         |                      |
|           | CDM-2MXB       | NC            |                   |                  |                   |                     |                         |                      |
|           | CDM-2MX-V      | NO            | Vertical          | 0.1m~2.0m        |                   |                     |                         |                      |
|           | CDM-2MXB-V     | NC            |                   |                  |                   |                     |                         |                      |
|           | CAM-2MX        | NO            | Horizontal        | 0.1m~2.0m        | 90~250VAC         | 0.5VA max.          | SCR<br>100mA            | 270° Trimmer         |
|           | CAM-2MXB       | NC            |                   |                  |                   |                     |                         |                      |
|           | CAM-2MX-V      | NO            | Vertical          |                  |                   |                     |                         |                      |
|           | CAM-2MXB-V     | NC            |                   |                  |                   |                     |                         |                      |
| Connector | CDM-2MX-M12    | NO            | Horizontal        | 0.1m~2.5m        | 10~30VDC          | 20mA max.           | NPN & PNP<br>150mA max. | 270° Trimmer         |
|           | CDM-2MXB-M12   | NC            |                   |                  |                   |                     |                         |                      |
|           | CDM-2MX-V-M12  | NO            | Vertical          | 0.1m~2.0m        |                   |                     |                         |                      |
|           | CDM-2MXB-V-M12 | NC            |                   |                  |                   |                     |                         |                      |

## Thru Beam Type

| Type      | Model          | Output Status | Sensing Direction | Sensing Distance | Operating Voltage | Current Consumption | Output Method            | Sensitivity Adjuster |
|-----------|----------------|---------------|-------------------|------------------|-------------------|---------------------|--------------------------|----------------------|
| Lead Wire | CDT-10MX       | NO            | Horizontal        | 10m              | 10~30VDC          | P<20mA<br>R<25mA    | NPN<br>&<br>PNP<br>150mA | 270°<br>Trimmer      |
|           | CDT-10MXB      | NC            |                   |                  |                   |                     |                          |                      |
|           | CDT-6MX-V      | NO            | Vertical          | 6m               |                   |                     |                          |                      |
|           | CDT-6MXB-V     | NC            |                   |                  |                   |                     |                          |                      |
| Connector | CDT-10MX-M12   | NO            | Horizontal        | 10m              | 10~30VDC          | P<20mA<br>R<25mA    | NPN<br>&<br>PNP<br>150mA | 270°<br>Trimmer      |
|           | CDT-10MXB-M12  | NC            |                   |                  |                   |                     |                          |                      |
|           | CDT-6MX-V-M12  | NO            | Vertical          | 6m               |                   |                     |                          |                      |
|           | CDT-6MXB-V-M12 | NC            |                   |                  |                   |                     |                          |                      |

## Guiding of Model

**Ex. CDR-30X-B-V-M12**

① ② ③ ④ ⑤ ⑥

### ① Model

CDR=DC Reflex Type  
CAR=AC Reflex Type  
CDM=DC Mirror Reflex Type  
CAM=AC Mirror Reflex Type  
CDT=DC Thru Beam Type

### ② Sensing Distance

30=30cm  
2M=2m  
10M=10m

### ③ Light Source

X=Infrared LED  
R=Red LED

### ④ Output Status

B=NC Type  
Non=NO Type

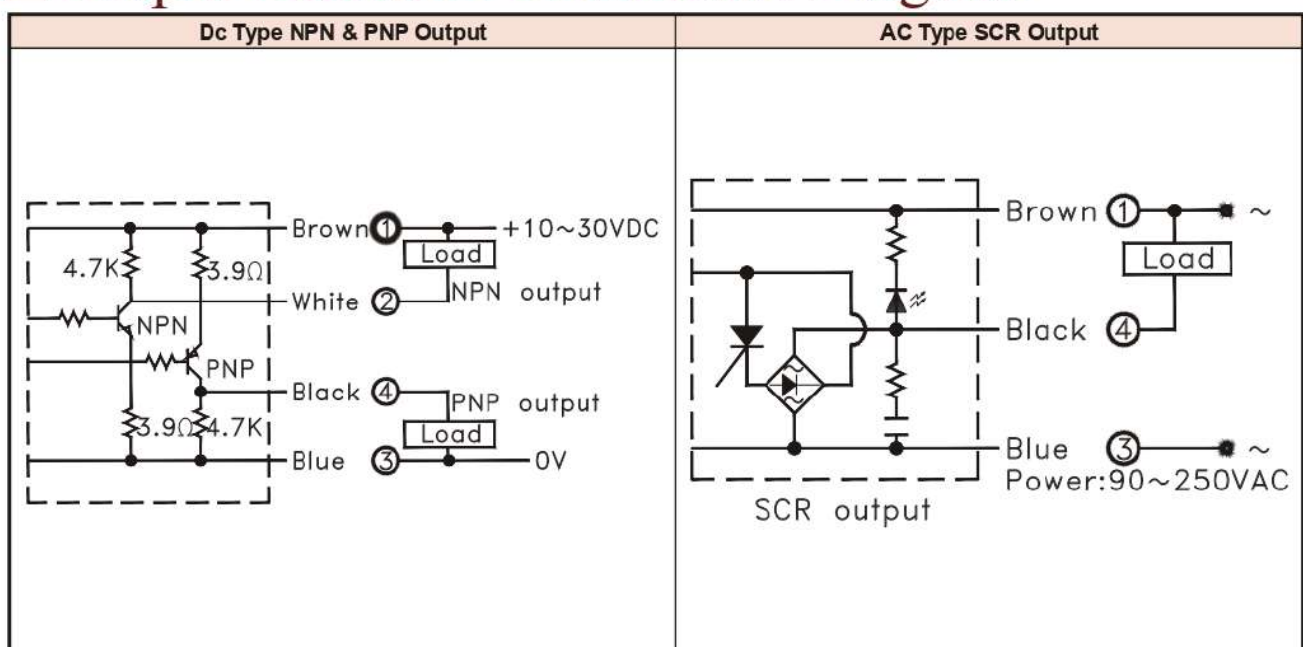
### ⑤ Sensing Direction

V=Vertical Type  
Non=Horizontal Type

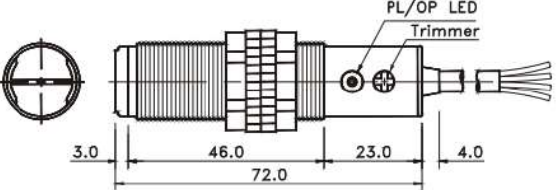
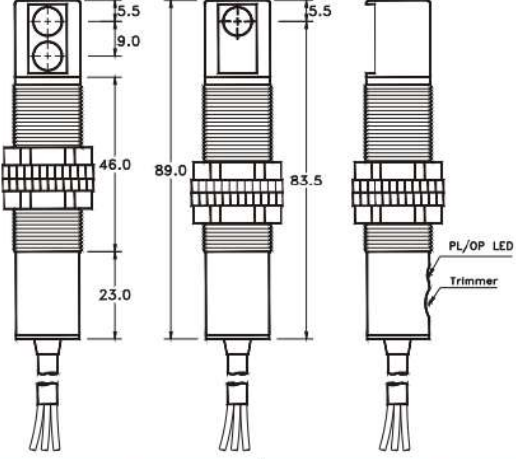
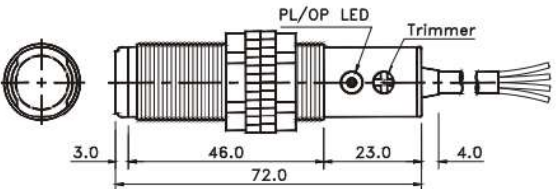
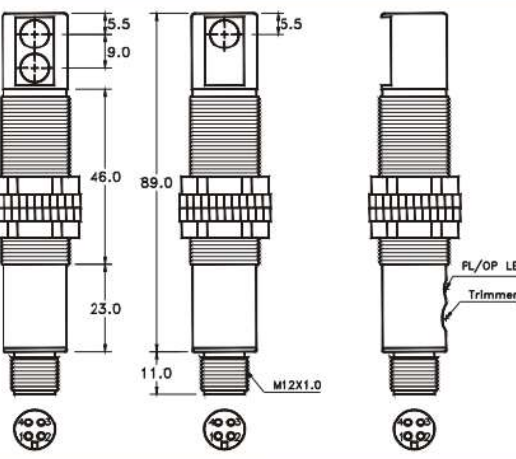
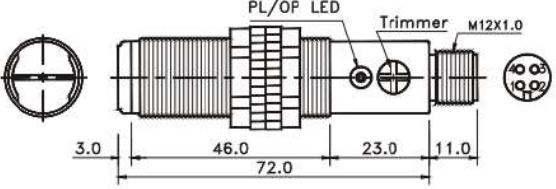
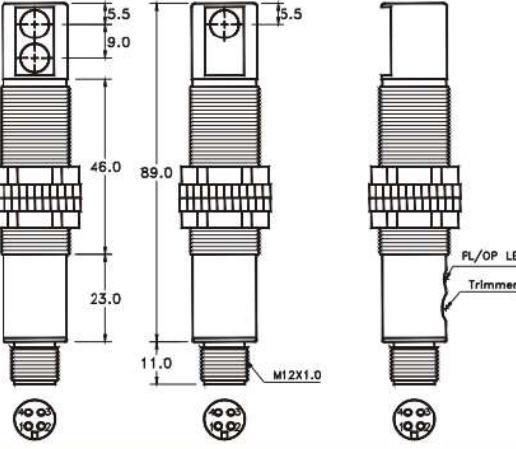
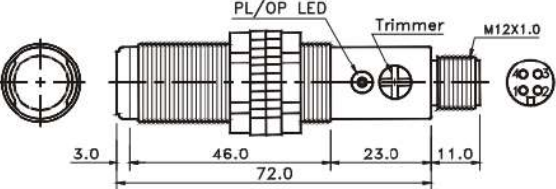
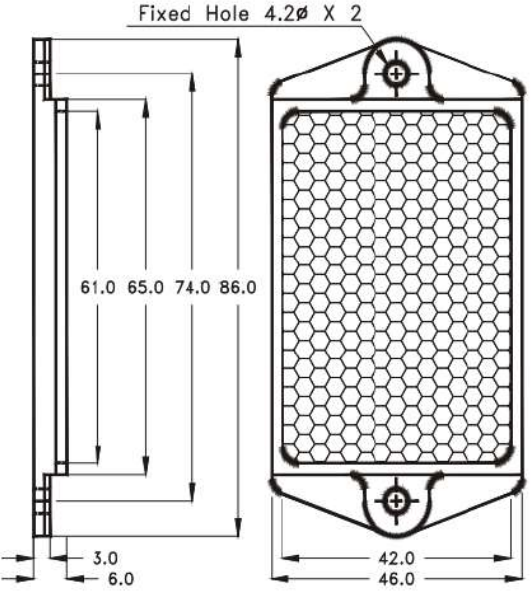
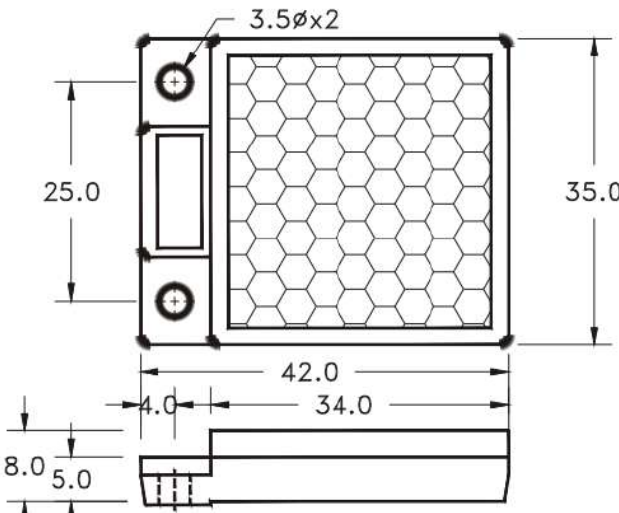
### ⑥ Connector Type

M12= M12x1.0

## Output Circuit & Connection Diagram



## Dimension

| Lead Wire Type                                                                      | CDR/CAR/CDM/CAM | Lead Wire Type                                                                      | Vertical Type                                                                        |
|-------------------------------------------------------------------------------------|-----------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
|    |                 |   |                                                                                      |
| Lead Wire Type                                                                      | CDT             | Connector Type                                                                      | Vertical Type                                                                        |
|    |                 |  |                                                                                      |
| Connector Type                                                                      | CDR-M12/CDM-M12 | Connector Type                                                                      | Vertical Type                                                                        |
|   |                 |  |                                                                                      |
| Connector Type                                                                      | CDT             | Mirror                                                                              | MR-2                                                                                 |
|  |                 |  |  |

### High Compact Structure

- 13.5 (W) X 25.0 (H) X 30.0 (L)

### High Protection Class

- IP-67

### Long Sensing Distance

- Reflex Type : 30cm , 60cm

- Mirror Reflex Type : 2m

- Thru Beam Type : 6m



## General Specification

| Specification        | Data                                                                                                                                                                                                                           |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operating Voltage    | 10 ~ 30 VDC ; Ripple < 20% of Peak to Peak                                                                                                                                                                                     |
| Output Method        | NPN & PNP Two Output                                                                                                                                                                                                           |
| Output Status        | NO < Normal Open > , NC Type Available Also                                                                                                                                                                                    |
| Output Current       | 150mA max.                                                                                                                                                                                                                     |
| Leakage Current      | 0.8mA max.                                                                                                                                                                                                                     |
| Residual Voltage     | 0.6V max.                                                                                                                                                                                                                      |
| Protection Circuit   | Short Circuit & Polarity Reversed Protection                                                                                                                                                                                   |
| Response Time        | 2ms Max.                                                                                                                                                                                                                       |
| Sensitivity Adjuster | 270° Trimmer                                                                                                                                                                                                                   |
| Emitter              | Infrared LED                                                                                                                                                                                                                   |
| Illumination         | Sunlight < 10,000 Lux. ; Lamplight < 5,000 Lux.                                                                                                                                                                                |
| Hysteresis           | 10% of Sensing Distance Max.                                                                                                                                                                                                   |
| Housing Material     | Case : PBT ; Lens : PC                                                                                                                                                                                                         |
| Operating Temp./Hum. | -20° C ~+60° C ; 35% ~ 85% RH                                                                                                                                                                                                  |
| Connection Method    | Lead Wire Type : 4 Cores / 5.0φ X 2m<br>Plug Type : 4 Pins                                                                                                                                                                     |
| Model of NC Type     | Reflex Type : MR-30XB , MR-30XPB , MR-60XB , MR-60XPB<br>PR-30XB , PR-30XPB , PR-60XB , PR-MXPB<br>Mirror Reflex Type : MG-2MXB , MG-2MXPB ,<br>PG-2MXB , PG-2MXPB<br>Thru Beam Type : MT-6MXB , MT-6MXPB , PT-6MXB , PT-6MXPB |
| Remarks              | Water Proof By Expose Filled for IP-67                                                                                                                                                                                         |

## Reflex Type

| Type                | Lead Wire Type                               |         |        |         | Plug Type |         |        |         |
|---------------------|----------------------------------------------|---------|--------|---------|-----------|---------|--------|---------|
| Model               | MR-30X                                       | MR-30XP | MR-60X | MR-60XP | PR-30X    | PR-30XP | PR-60X | PR-60XP |
| Protection Class    | IP-65                                        | IP-67   | IP-65  | IP-67   | IP-65     | IP-67   | IP-65  | IP-67   |
| Sensing Distance    | 30cm                                         |         | 60cm   |         | 30cm      |         | 60cm   |         |
| Operating Voltage   | 10~30 VDC ; Ripple < 20% Peak to Peak        |         |        |         |           |         |        |         |
| Current Consumption | 30mA max.                                    |         |        |         |           |         |        |         |
| Output Method       | NPN & PNP Two Way Output                     |         |        |         |           |         |        |         |
| Output Status       | NO < Normal Open >                           |         |        |         |           |         |        |         |
| Output Current      | 150mA max.                                   |         |        |         |           |         |        |         |
| Emitter             | Infrared LED                                 |         |        |         |           |         |        |         |
| Protection Circuit  | Short Circuit & Polarity Reversed Protection |         |        |         |           |         |        |         |
| Weight < Appr. >    | 78g                                          | 84g     | 78g    | 84g     | 12g       | 18g     | 12g    | 18g     |

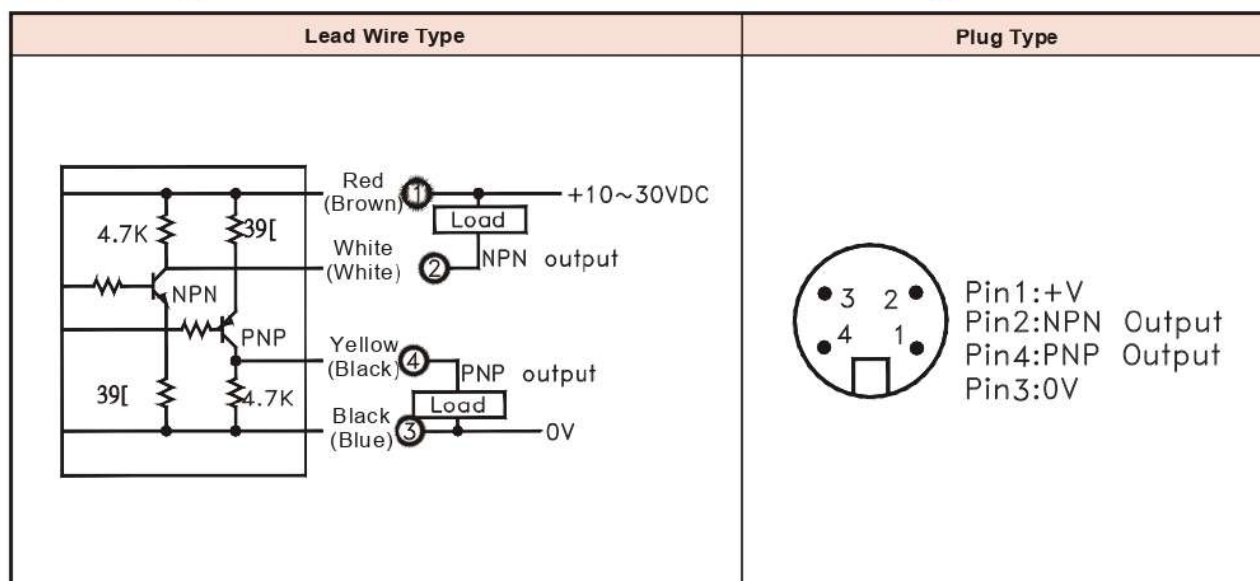
## Mirror Reflex Type

| Type                | Lead Wire Type                               |         | Plug Type |         |
|---------------------|----------------------------------------------|---------|-----------|---------|
| Model               | MG-2MX                                       | MG-2MXP | PG-2MX    | PG-2MXP |
| Protection Class    | IP-65                                        | IP-67   | IP-65     | IP-67   |
| Sensing Distance    | 2m                                           |         |           |         |
| Operating Voltage   | 10~30 VDC ; Ripple < 20% Peak to Peak        |         |           |         |
| Current Consumption | 30mA max.                                    |         |           |         |
| Output Method       | NPN & PNP Two Way Output                     |         |           |         |
| Output Status       | NO < Normal Open >                           |         |           |         |
| Output Current      | 150mA max.                                   |         |           |         |
| Emitter             | Infrared LED                                 |         |           |         |
| Protection Circuit  | Short Circuit & Polarity Reversed Protection |         |           |         |
| Weight < Appr. >    | 78g                                          | 84g     | 12g       | 18g     |

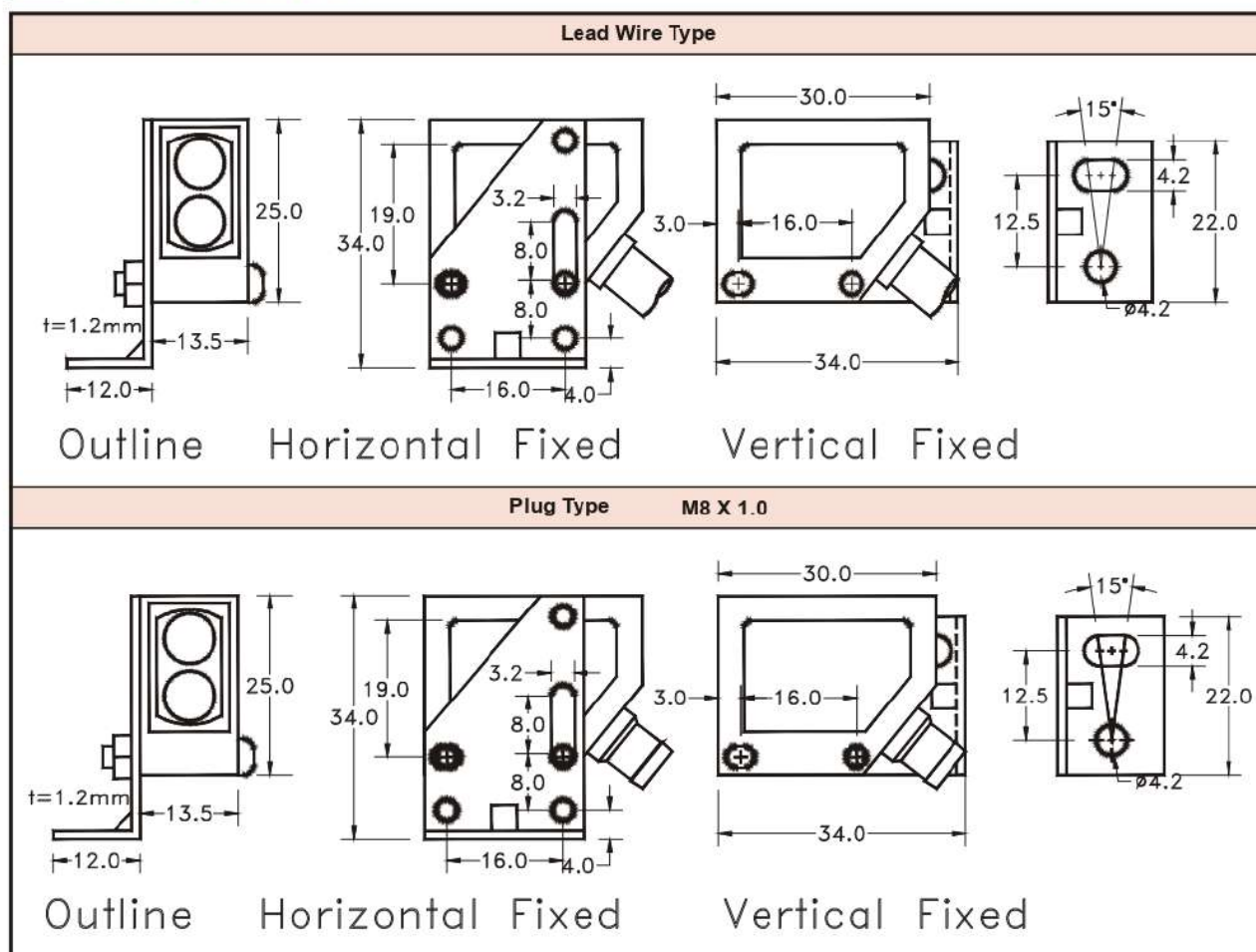
## Thru Beam Type

| Type                | Lead Wire Type                               |         | Plug Type |         |
|---------------------|----------------------------------------------|---------|-----------|---------|
| Model               | MT-6MX                                       | MT-6MXP | PT-6MX    | PT-6MXP |
| Protection Class    | IP-65                                        | IP-67   | IP-65     | IP-67   |
| Sensing Distance    | 6m                                           |         | 6m        |         |
| Operating Voltage   | 10~30 VDC ; Ripple < 20% Peak to Peak        |         |           |         |
| Current Consumption | Emitter < 20mA , Receiver < 25mA             |         |           |         |
| Output Method       | NPN & PNP Two Way Output                     |         |           |         |
| Output Status       | NO < Normal Open >                           |         |           |         |
| Output Current      | 150mA max.                                   |         |           |         |
| Emitter             | Infrared LED                                 |         |           |         |
| Protection Circuit  | Short Circuit & Polarity Reversed Protection |         |           |         |
| Weight < Appr. >    | 180g                                         | 162g    | 20g       | 32g     |

## Output Circuit & Connection Diagram



## Dimension



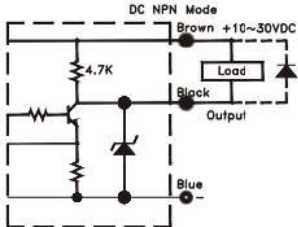
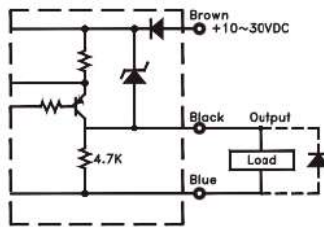
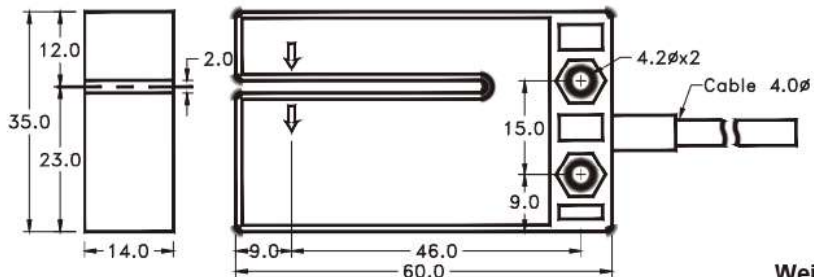
# HIGH SPEED U TYPE LABEL SENSOR

**SU-02  
series**

- ※ High Speed Response : 10 KHZ
- ※ Label Non - Transparent Tape Detectable.  
< SU-02X >
- ※ Mark ON Transparent Tape Detectable.  
< SU-02R >
- ※ Suiting For Label Machine or Packing Machine.



## ■ Specification

|                                     |                                                                                                          |         |                                                                                                     |         |
|-------------------------------------|----------------------------------------------------------------------------------------------------------|---------|-----------------------------------------------------------------------------------------------------|---------|
| Model                               | SU-02X                                                                                                   | SU-02XP | SU-02R                                                                                              | SU-02RP |
| Output Method                       | NPN                                                                                                      | PNP     | NPN                                                                                                 | PNP     |
| Emitter                             | Infrared LED                                                                                             |         | Red LED                                                                                             |         |
| Operating Voltage                   | 10~30 VDC ; Current Consumption 40mA max.                                                                |         |                                                                                                     |         |
| Output Current                      | 150mA max.                                                                                               |         |                                                                                                     |         |
| Output Status                       | NO                                                                                                       |         |                                                                                                     |         |
| Sensible Object                     | Non - Transparent Object                                                                                 |         | Transparent Object                                                                                  |         |
| Response Frequency                  | 10KHZ                                                                                                    |         |                                                                                                     |         |
| Illumination                        | Lamplight < 3,000 Lux ; Sunlight < 5,000 Lux.                                                            |         |                                                                                                     |         |
| Connection Method                   | 3 Cores / 4.0φ X 2m                                                                                      |         |                                                                                                     |         |
| Housing Material                    | PC Plastics                                                                                              |         |                                                                                                     |         |
| Operating Temp./Hum.                | -20 C~+70 C ; 35%~85% RH                                                                                 |         |                                                                                                     |         |
| Sensitivity Adjuster                | 270 Trimmer                                                                                              |         |                                                                                                     |         |
| Output Circuit & Connection Diagram | <b>NPN</b><br>        |         | <b>PNP</b><br> |         |
|                                     | <b>Dimension</b><br> |         |                                                                                                     |         |

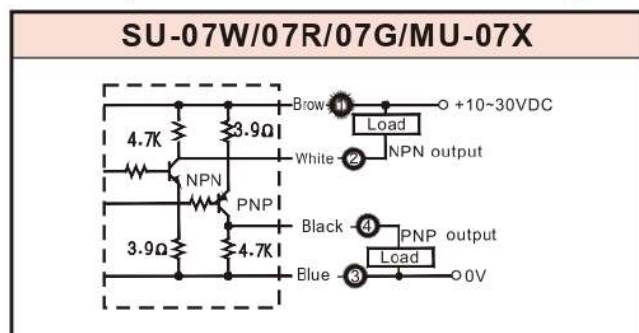
- ※ WHITE LIGHT MARK SENSOR
- EASY TO DETECT THE "GREEN" OR "RED" MARK
- ※ HIGH STABILITY & RELIABILITY
- ※ LOW COST & HIGH QUALITY



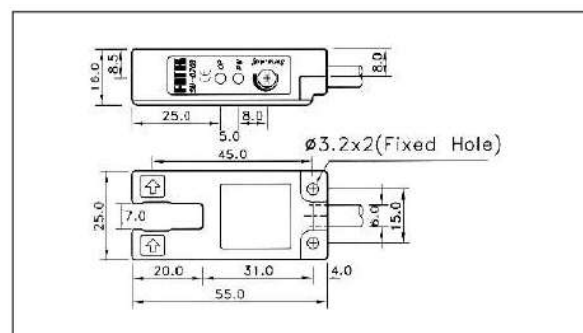
## SPECIFICATION

| TYPE<br>型式                 | MARK SENSOR                                  |           |         | LABEL SENSOR     |
|----------------------------|----------------------------------------------|-----------|---------|------------------|
| Model 型號                   | SU-07W                                       | SU-07G    | SU-07R  | MU-07X           |
| Emitter 發射光源               | White Led                                    | Green Led | Red Led | Infrared Led     |
| Operating voltage 工作電壓     | 10-30 VDC; Ripple < 20% of peak to peak      |           |         |                  |
| Current consumption 消耗電流   | 30 mA max.                                   |           |         |                  |
| Sensitivity adjuster       | 270° Trimmer                                 |           |         |                  |
| Output method 輸出方式         | NPN & PNP two output                         |           |         |                  |
| Output current 輸出電流        | 150 mA max.                                  |           |         |                  |
| Output status 輸出狀態         | Standard : NO Type ; SU-07 -B : NC Type      |           |         |                  |
| Protection circuit 保護迴路    | Short Circuit & Polarity Reversed Protection |           |         |                  |
| Sensible object 可被檢測物      | Transparent Object                           |           |         | Semi-Transparent |
| Min.sensible object 最小可檢測物 | 2.0 φ                                        |           |         |                  |
| Response frequency 響應頻率    | 1 K Hz                                       |           |         |                  |
| Illumination 耐外亂光          | Lamplight <5000 LUX ; Sunlight < 10,000 LUX  |           |         |                  |
| Connection method 接線方式     | 4 φ / 4 φ X 2m                               |           |         |                  |
| Housing material 外殼材質      | Intensive ABS                                |           |         |                  |
| Operating temp/hum 工作環境    | -20℃ ~ +60℃ ; 35% ~ 85 % RH                  |           |         |                  |
| Protection 保護等級            | IP-65                                        |           |         |                  |

## Output Circuit & Connection Diagram



## Dimension



# U TYPE HIGH SPEED GEAR SENSOR

**SU-07X series**

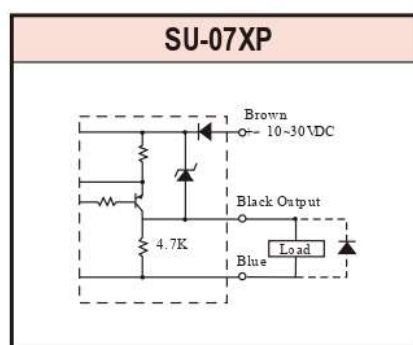
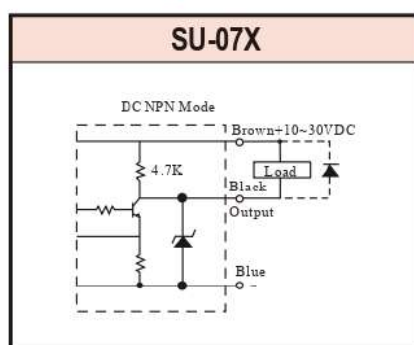
- ※ HIGH SPEED RESPONSE : 5 KHz
- ※ HIGH STABILITY & RELIABILITY
- ※ LOW COST & HIGH QUALITY



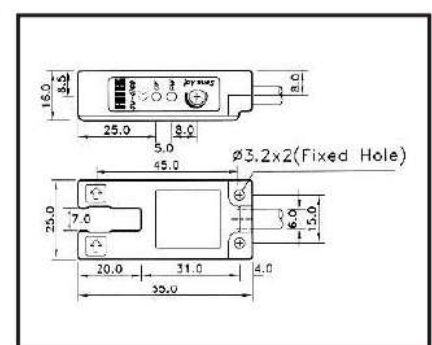
## SPECIFICATION

| Model               | 型號     | SU-07X                                       | SU-07XP |
|---------------------|--------|----------------------------------------------|---------|
| Output method       | 輸出方式   | NPN                                          | PNP     |
| Operating voltage   | 工作電壓   | 10-30 VDC; Ripple < 20% of peak to peak      |         |
| Current consumption | 消耗電流   | 30 mA max.                                   |         |
| Output current      | 輸出電流   | 150 mA max.                                  |         |
| Protection circuit  | 保護迴路   | Short Circuit & Polarity Reversed Protection |         |
| Emitter             | 發射光源   | Infrared Led                                 |         |
| Min.sensible object | 最小可檢測物 | 1.0 $\phi$                                   |         |
| Response frequency  | 響應頻率   | 5 K Hz                                       |         |
| Illumination        | 耐外亂光   | Lamplight < 5000 LUX ; Sunlight < 10,000 LUX |         |
| Connection method   | 接線方式   | 4 $\phi$ / 3 $\phi$ X 2m                     |         |
| Housing material    | 外殼材質   | Intensive ABS                                |         |
| Operating temp/hum  | 工作環境   | -20°C ~ +70°C ; 35% ~ 85 % RH                |         |
| Protection          | 保護等級   | IP-65                                        |         |

## Output Circuit & Connection Diagram



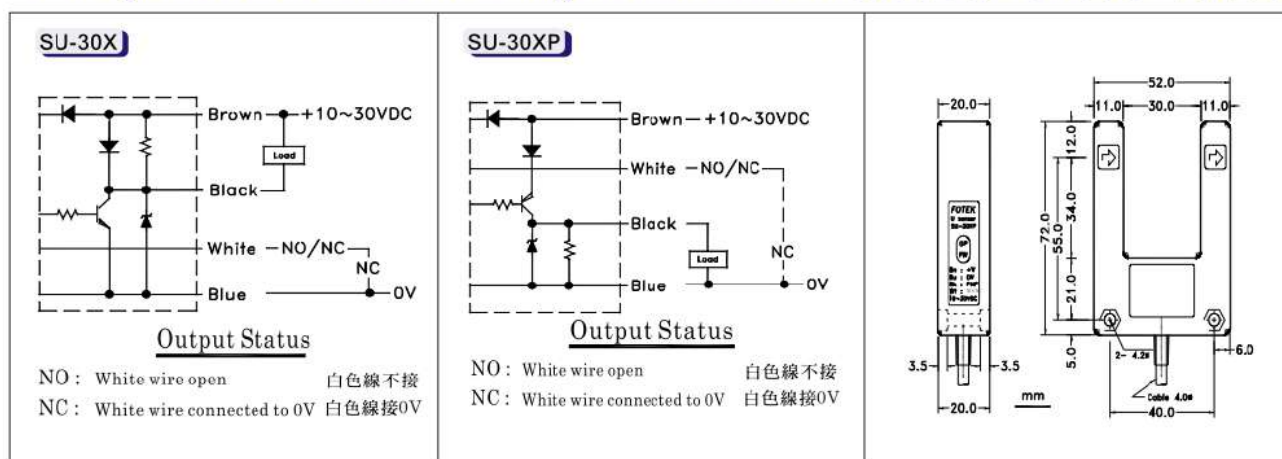
## Dimension



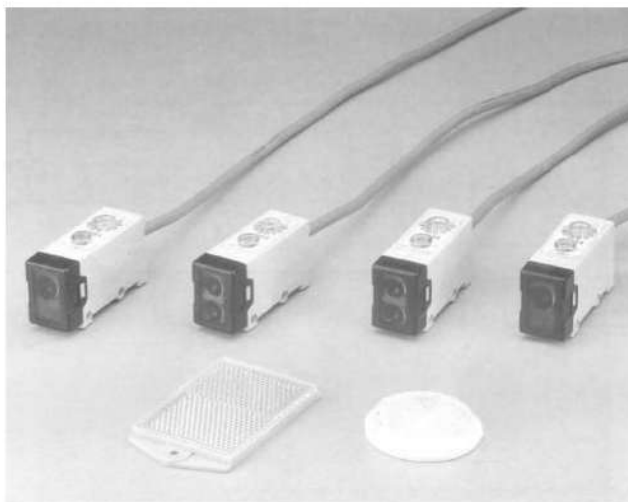
## ◆ Specification / 規格

| Model                  | 型號    | SU-30X                                             | SU-30XP |
|------------------------|-------|----------------------------------------------------|---------|
| Output method          | 輸出方式  | NPN                                                | PNP     |
| Detecting distance     | 開口寬度  | 30mm                                               |         |
| Emitter                | 發射光源  | Infrared LED                                       |         |
| Detectable object      | 最小檢測物 | Opaque object 4.0 $\phi$ min.                      |         |
| Sensitivity adjuster   | 感度調整  | non                                                |         |
| Operating voltage      | 工作電壓  | 10 ~ 30VDC                                         |         |
| Ripple of power        | 電源漣波  | 20% peak to peak                                   |         |
| Current consumption    | 消耗電流  | 30mA max.                                          |         |
| Response time          | 反應時間  | 1.0 ms max.                                        |         |
| Output status          | 輸出狀態  | NO/NC changeable                                   |         |
| Output current         | 輸出電流  | 150mA max.                                         |         |
| Residual voltage       | 殘留電壓  | 0.1V max.                                          |         |
| Leakage current        | 洩露電流  | 0.8mA max.                                         |         |
| Protection circuit     | 保護電路  | Short circuit & polarity reversed protection       |         |
| Housing material       | 外殼材質  | Aluminum alloy / 鋁合金                               |         |
| Noise resistance       | 抗干擾   | 2kv/1 $\mu$ s                                      |         |
| Dielectric strength    | 電介強度  | 2.5kv / 1 minute min.                              |         |
| Insulation strength    | 絕緣強度  | 100 M $\Omega$ / 500vdc                            |         |
| Operating circumstance | 工作環境  | -20 $^{\circ}$ C ~ +80 $^{\circ}$ C ; 35% ~ 85% RH |         |
| Protection class       | 保護等級  | IP-65                                              |         |
| Approval               | 認證    | CE                                                 |         |

## ◆ Output circuit & connection diagram& Dimension / 輸出回路 & 接線圖 & 外形圖



- ※ Operating Voltage : 11~30VDC
- ※ NPN & PNP Two Output ,  
NO / NC Changeable .
- ※ Polarity Reversed Protection Circuit .
- ※ Vertical & Horizontal Sensing  
Direction Are Available .  
Protected By Short Circuit &
- ※ Long Sensing Distance  
Reflex Type : 2M  
Mirror Reflex Type : 4M  
Thru Beam Type : 20M



## General Specification

| Specification                             | Data                                             |
|-------------------------------------------|--------------------------------------------------|
| Operating Voltage                         | 10~30 VDC ; Ripple < 20% of Peak to Peak         |
| Output Method                             | NPN & PNP Two Output                             |
| Output Status                             | NO < Normal Open > , NC Type Available Also      |
| Output Current                            | 150mA max.                                       |
| Protection Circuit                        | Short Circuit & Polarity Reversed Protection     |
| Residual Voltage                          | 0.8V max.                                        |
| Leakage Current                           | 0.8mA max.                                       |
| Sensitivity Adjuster                      | 270° Trimmer                                     |
| Response Time                             | 2ms Max.                                         |
| Hysteresis                                | 10% of Sensing Distance Max.                     |
| Emitter                                   | Infrared LED                                     |
| Illumination                              | Sunlight < 50,000 Lux. ; Lamplight < 10,000 Lux. |
| Connection Method                         | 4 Cores / 5.0φ X 2m                              |
| Housing Material                          | Intensive PBT                                    |
| Operating Temp./Hum.                      | -20°C~+60°C ; 35%~85% RH                         |
| Protection Class                          | IP-65                                            |
| Output Circuit<br>&<br>Connection Diagram |                                                  |

## ■ Specification

|                     |                                  |            |            |            |
|---------------------|----------------------------------|------------|------------|------------|
| Reflex Type         | FR-1MX                           | FR-1MX-V   | FR-2MX     | FR-2MX-V   |
| Sensing Direction   | Horizontal                       | Vertical   | Horizontal | Vertical   |
| Sensing Distance    | 1m                               |            | 2m         |            |
| Current Consumption | 20mA max.                        |            | 35mA max.  |            |
| Weight              | Appr. 105g                       | Appr. 120g | Appr. 105g | Appr. 125g |
|                     |                                  |            |            |            |
| Mirror Reflex Type  | FG-3MX                           |            | FG-3MX-V   |            |
| Sensing Direction   | Horizontal                       |            | Vertical   |            |
| Sensing Distance    | 4m                               |            |            |            |
| Current Consumption | 20mA max.                        |            |            |            |
| Weight              | Appr. 105g                       |            | Appr. 120g |            |
|                     |                                  |            |            |            |
| Thru Beam Type      | FT-10MX                          | FT-10MX-V  | FT-20MX    | FT-20MX-V  |
| Sensing Direction   | Horizontal                       | Vertical   | Horizontal | Vertical   |
| Sensing Distance    | 10m                              |            | 20m        |            |
| Current Consumption | Emitter < 30mA ; Receiver < 20mA |            |            |            |
| Weight              | Appr. 210g                       | Appr. 240g | Appr. 210g | Appr. 240g |

## ■ Dimension

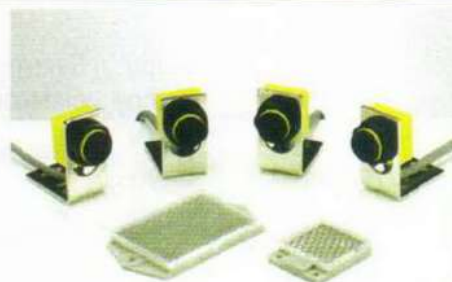
| FR • FG | FR-V • FG-V | Mirror MR-1 |
|---------|-------------|-------------|
|         |             |             |
| FT      | FT-V        |             |
|         |             |             |

# RTM Series M18 Ultra short tubular type Photo sensor



RoHS

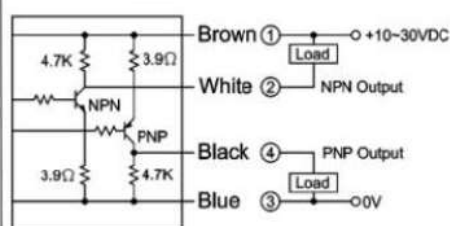
- Ultra short body length : 30 mm
- Ultra long setting distance : 30m
- Twice output : NPN & PNP
- High solid compact structure



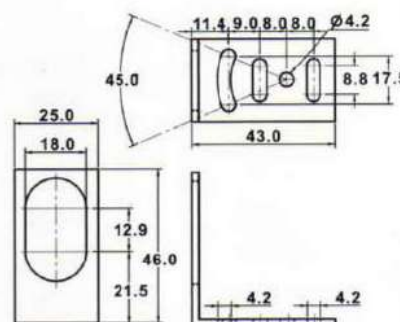
## ◆ General Specification / 共同規格

| Specification               | Data                                          |
|-----------------------------|-----------------------------------------------|
| Operating voltage 工作電壓      | 10 ~ 30VDC                                    |
| Ripple of power 電源漣波        | 20% peak to peak                              |
| Output method 輸出方式          | NPN & PNP two way output                      |
| Output current 輸出電流         | 150mA max.                                    |
| Output status 輸出狀態          | Standard : NO ; Appended with 'B' : NC        |
| Residual voltage 殘留電壓       | 0.1V max.                                     |
| Leakage current 洩露電流        | 0.8mA max.                                    |
| Protection circuit 保護電路     | Short circuit & polarity reversed protection  |
| Housing material 外殼材質       | Intensive PBT                                 |
| Illumination 耐外亂光           | Lamp light < 10,000Lux ; Sunlight < 20,000Lux |
| Noise resistance 抗干擾        | 2kv / 1μs                                     |
| Dielectric strength 電介強度    | 2.5kv / 1 minute min.                         |
| Insulation strength 絕緣強度    | 100 MΩ / 500vdc                               |
| Operating circumstance 工作環境 | -25°C ~ +80°C ; 35% ~ 85% RH                  |
| Protection class 保護等級       | IP-67                                         |
| Approval 認證                 | CE                                            |

## Connection diagram / 接線圖



## Fixed Bracket / 固定架



## ◆ Outline dimension / 外形尺寸圖

| Lead wire | M8 Lead wire | M12 Connector |
|-----------|--------------|---------------|
|           |              |               |

◆ Reflex type / 反射型

|                           |              |         |              |            |               |             |
|---------------------------|--------------|---------|--------------|------------|---------------|-------------|
| Connection method         | Lead wire    |         | M8 Lead wire |            | M12 Connector |             |
| Model 型號                  | R18-10X      | R18-30X | R18-10X-PG   | R18-30X-PG | R18-10X-M12   | R18-30X-M12 |
| Sensing distance 檢測距離     | 10 cm        | 30 cm   | 10 cm        | 30 cm      | 10 cm         | 30 cm       |
| Sensitivity adjuster 感度調整 | 270 Trimmer  |         |              |            | Non           |             |
| Emitter 發射光源              | Infrared LED |         |              |            |               |             |
| Current consumption 消耗電流  | 30mA max.    |         |              |            |               |             |
| Response time 反應時間        | 1.0 ms max.  |         |              |            |               |             |
| Approval 認證               | CE           |         |              |            |               |             |

◆ Mirror Reflex type / 鏡片反射型

| Connection method         | Lead wire       |             |                 | M8 Lead wire    |             |                 |
|---------------------------|-----------------|-------------|-----------------|-----------------|-------------|-----------------|
| Model 型號                  | M18-3MX         | M18-1MG     | M18-2MRE        | M18-3MX-PG      | M18-1MG-PG  | M18-2MRE-PG     |
| Filter                    | Non             | Non         | Polarity        | Non             | Non         | Polarity        |
| Emitter 發射光源              | Infrared LED    | Blue LED    | Red LED         | Infrared LED    | Blue LED    | Red LED         |
| Setting distance 設定距離     | 0.1~3.0m        | 0.2~1.2m    | 0.2~2.0m        | 0.1~3.0m        | 0.2~1.2m    | 0.2~2.0m        |
| Sensitivity adjuster 感度調整 | Non             | 270 Trimmer | 270 Trimmer     | Non             | 270 Trimmer | 270 Trimmer     |
| Sensible object 可被檢測物     | Non-Transparent | Transparent | Non-Transparent | Non-Transparent | Transparent | Non-Transparent |
| Current consumption消耗電流   | 30mA max.       |             |                 |                 |             |                 |
| Response time 反應時間        | 1.0 ms max.     |             |                 |                 |             |                 |
| Approval 認證               | CE              |             |                 |                 |             |                 |

| Connection method         | M12 Connector   |             |                 |
|---------------------------|-----------------|-------------|-----------------|
| Model 型號                  | M18-3MX-M12     | M18-1MG-M12 | M18-2MRE-M12    |
| Filter                    | Non             | Non         | Polarity        |
| Emitter 發射光源              | Infrared LED    | Blue LED    | Red LED         |
| Setting distance 設定距離     | 0.1~3.0m        | 0.2~1.2m    | 0.2~2.0m        |
| Sensitivity adjuster 感度調整 | Non             | Non         | Non             |
| Sensible object 可被檢測物     | Non-Transparent | Transparent | Non-Transparent |
| Current consumption消耗電流   | 30mA max.       |             |                 |
| Response time 反應時間        | 1.0 ms max.     |             |                 |
| Approval 認證               | CE              |             |                 |

◆ Thru beam type / 透過型

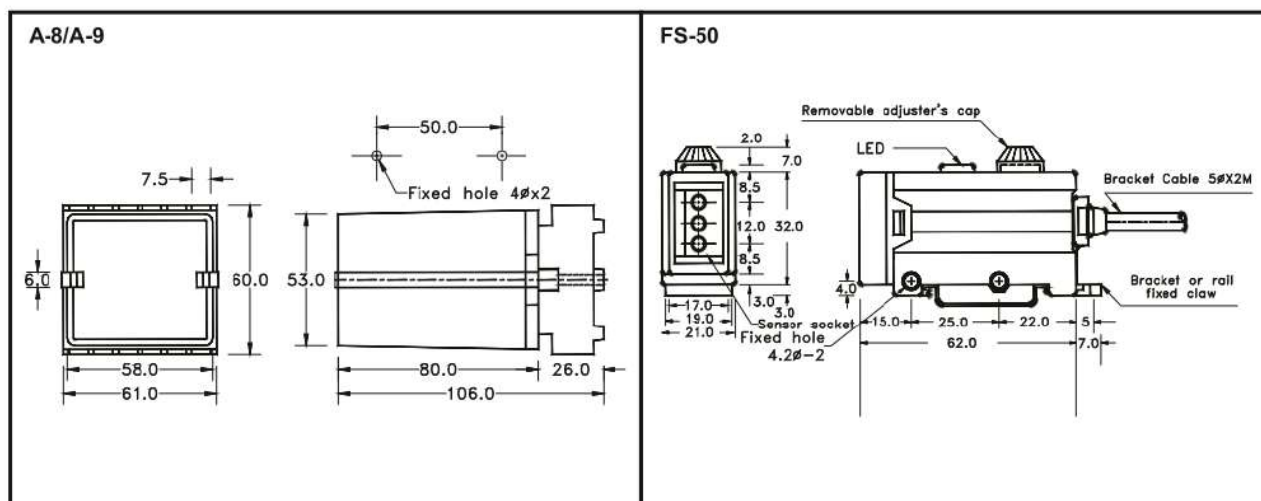
| Connection method         | Lead wire    |         | M8 Lead wire |            | M12 Connector |             |
|---------------------------|--------------|---------|--------------|------------|---------------|-------------|
| Model 型號                  | T18-30MX     | T18-6MX | T18-30MX-PG  | T18-6MX-PG | T18-30MX-M12  | T18-6MX-M12 |
| Sensing distance 設定距離     | 0~30m        | 0~6m    | 0~30m        | 0~6m       | 0~30m         | 0~6m        |
| Sensitivity adjuster 發射光源 | Infrared LED |         |              |            |               |             |
| Emitter 感度調整              | Non          |         |              |            |               |             |
| Current consumption 消耗電流  | 30mA max.    |         |              |            |               |             |
| Response time 反應時間        | 1.0 ms max.  |         |              |            |               |             |
| Approval 認證               | CE / UL      |         |              |            |               |             |



## Amplifier Unit

| Type                 | AC Type                   |                                                                      | DC Type           |
|----------------------|---------------------------|----------------------------------------------------------------------|-------------------|
| Model                | A-8                       | A-9                                                                  | FS-50             |
| Operating Voltage    | 110/220VAC , 50/60Hz      |                                                                      | 11~30 VAC         |
| Current Consumption  | 3VA max.                  |                                                                      | 30mA max.         |
| Response Time        | 15ms                      | 2ms                                                                  | 2ms               |
| Output Method        | Relay , 5A/250 VAC        |                                                                      | NPN & PNP , 150mA |
| Output Control       | Non                       | Timer : 0.01s~10s<br>Adjustable<br>ON Delay<br>OFF Delay<br>One Shot | Non               |
| Output Status        | NO / NC Changeable        |                                                                      |                   |
| Sensitivity Adjuster | 270° Trimmer              |                                                                      |                   |
| Operating Temp./Hum. | -20°C~+60°C ; 35%~250% RH |                                                                      |                   |
| Connection Diagram   |                           |                                                                      |                   |

## Dimension



## Sensor Head Unit

| Type           | Shape & Dimension | Model     | Light Source | Sensible Distance | Sensible Object      | Illumination               | Housing Material | Operating Temp        |                          |
|----------------|-------------------|-----------|--------------|-------------------|----------------------|----------------------------|------------------|-----------------------|--------------------------|
| Thru Beam Type |                   | SV-10     | Green LED    | 15cm              | 2 φ                  | Infrared LED               | Intensive-ABS    | -20° C<br> <br>+60° C |                          |
|                |                   | SV-15     | Red LED      | 15cm              | 0.5 φ                |                            |                  |                       |                          |
|                |                   | SV-30     | Red LED      | 30cm              | 1 φ                  |                            |                  |                       |                          |
|                |                   | SV-50     | Red LED      | 50cm              | 2 φ                  |                            |                  |                       |                          |
|                |                   | SV-2M     | Infrared     | 200cm             | 2 φ                  |                            |                  |                       |                          |
|                |                   | SH-10     | Green LED    | 15cm              | 2 φ                  | Lamp-light<br>≤ 10,000 LUX |                  |                       |                          |
|                |                   | SH-15     | Red LED      | 15cm              | 0.5 φ                |                            |                  |                       | Sunlight<br>≤ 30,000 LUX |
|                |                   | SH-30     | Red LED      | 30cm              | 1 φ                  |                            |                  |                       |                          |
|                |                   | SH-50     | Red LED      | 50cm              | 2 φ                  |                            |                  |                       |                          |
|                |                   | SH-2M     | Infrared     | 200cm             | 2 φ                  |                            |                  |                       |                          |
|                | SC-10             | Green LED | 15cm         | 2 φ               | Red LED<br>Green LED |                            |                  |                       |                          |
|                | SC-15             | Red LED   | 15cm         | 0.5 φ             |                      |                            |                  |                       |                          |
|                | SC-30             | Red LED   | 30cm         | 1 φ               |                      |                            |                  |                       |                          |
|                | SC-50             | Red LED   | 50cm         | 2 φ               |                      |                            |                  |                       |                          |
|                | SC-2M             | Infrared  | 200cm        | 2 φ               |                      |                            |                  |                       |                          |
| Reflex Type    |                   | SB-03     | Red LED      | 3 cm              | 2 φ                  | Lamp-light<br>< 5,000 LUX  |                  |                       |                          |
|                |                   | SB-10     | Infrared LED | 10 cm             | 1 φ                  | Sunlight<br>< 10,000 LUX   |                  |                       |                          |

# E 2 Series Mini square type Photo sensor

CE RoHS

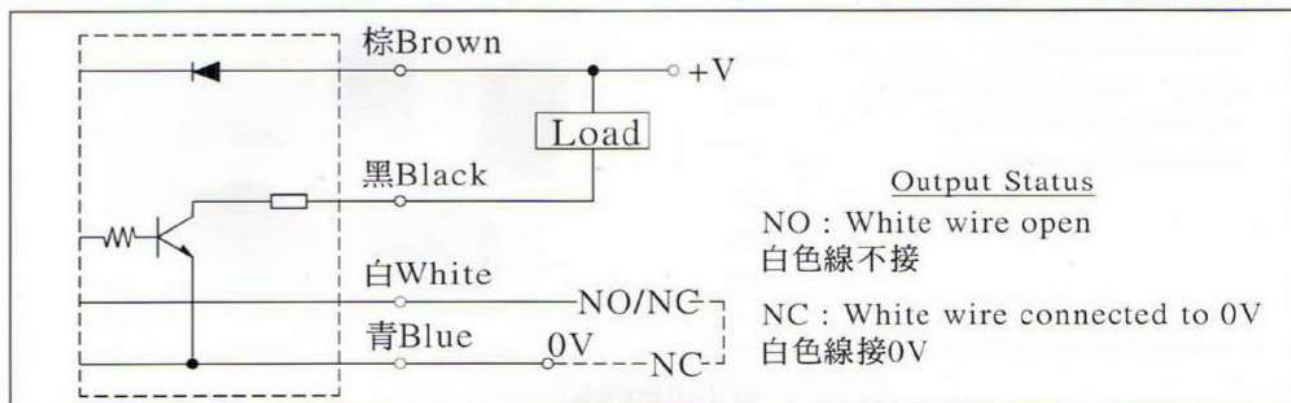
- Solid compact structure :  
12x30x17 (WxHxD mm)
- Protection class : IP-66
- Output status NO / NC changeable
- Polarized mirror reflex type available
- Transparent object detectable



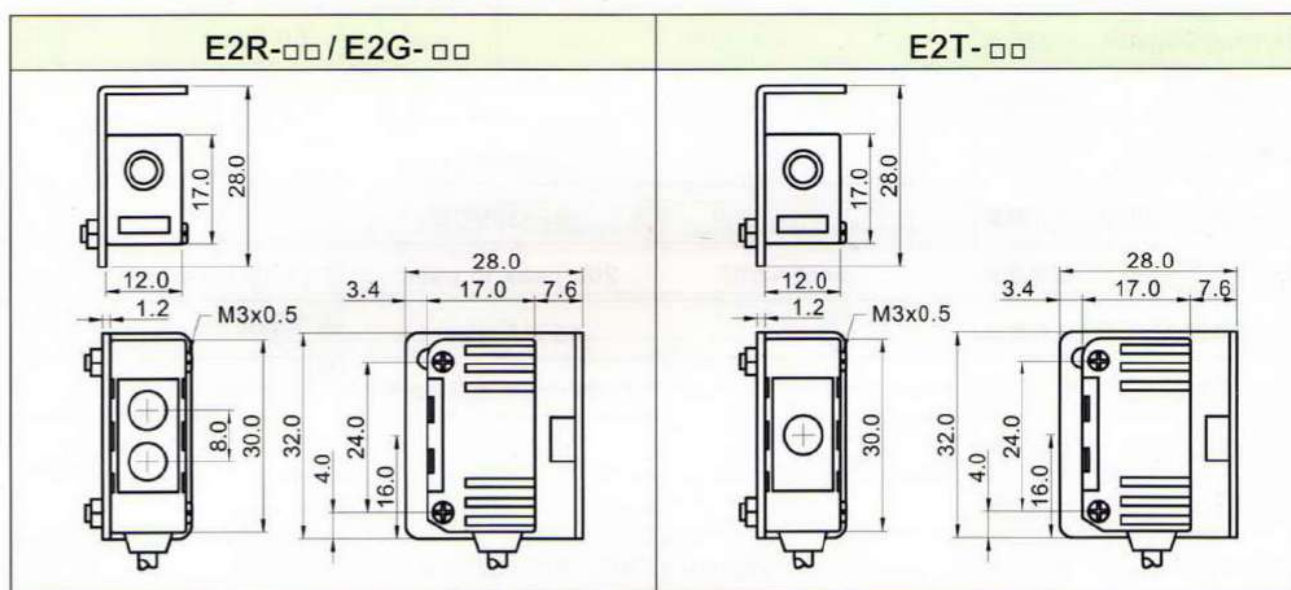
## ◆ General Specification / 共同規格

| Type                     | Diffuse Reflex                               |         | Mirror Reflex |          |           | Thru Beam    |
|--------------------------|----------------------------------------------|---------|---------------|----------|-----------|--------------|
| Model                    | E2R-10N                                      | E2R-30N | E2G-2MN       | E2G-1MRE | E2G-1MG   | E2T-4MN      |
| Sensing distance         | 10cm                                         | 30cm    | 2.0m          | 1.2m     | 1.2m      | 6.0m         |
| Emitter                  | Infrared LED                                 |         | Red LED       |          | Green LED | Infrared LED |
| Current consumption 耗電流  | 30 mA max.                                   |         | 25 mA max.    |          |           | 40 mA max.   |
| Response time 應答時間       | 1 ms max.                                    |         |               |          |           |              |
| Operating voltage 工作電壓   | 10 ~ 30VDC                                   |         |               |          |           |              |
| Ripple of power 電源漣波     | 20% peak to peak                             |         |               |          |           |              |
| Output method 輸出方式       | NPN NO/NC changeable                         |         |               |          |           |              |
| Output current 輸出電流      | 150mA max.                                   |         |               |          |           |              |
| Residual voltage 殘留電壓    | 0.1V max.                                    |         |               |          |           |              |
| Leakage current 洩露電流     | 0.8mA max.                                   |         |               |          |           |              |
| Protection circuit 保護電路  | Short circuit & polarity reversed protection |         |               |          |           |              |
| Housing material 外殼材質    | Intensive PBT                                |         |               |          |           |              |
| Illumination 耐外亂光        | Lamp light<10,000Lux : Sunlight<20,000Lux    |         |               |          |           |              |
| Noise resistance 抗干擾     | 2kv/1μs                                      |         |               |          |           |              |
| Dielectric strength 電介強度 | 2.5kv / 1 minute min.                        |         |               |          |           |              |
| Insulation strength 絕緣強度 | 100 MΩ / 500vdc                              |         |               |          |           |              |
| Operating circum. 工作環境   | -25℃ ~ +80℃ : 35% ~ 85% RH                   |         |               |          |           |              |
| Protection class 保護等級    | IP-66                                        |         |               |          |           |              |
| Approval 認證              | CE Rohs                                      |         |               |          |           |              |

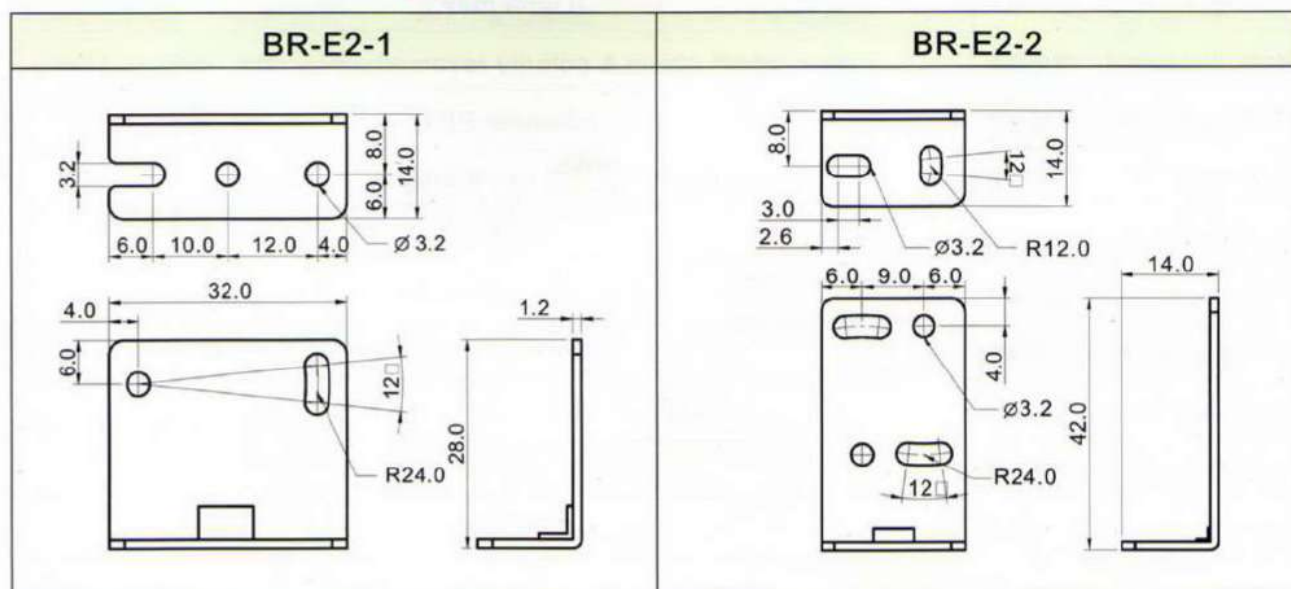
◆ Output circuit & Connection diagram / 輸出回路及接線圖



◆ Dimension / 外形尺寸圖



◆ Fixed bracket / 固定架



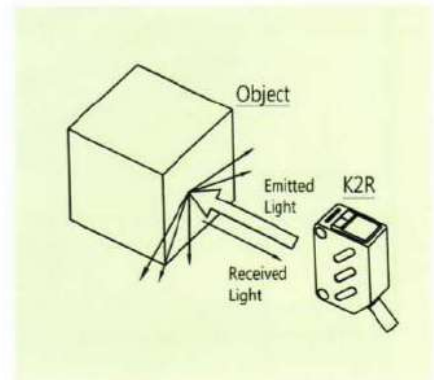
## ◆ Notice of use / 使用注意事項：

### Reflex type / 直接反射型

感測器的發射晶體與接收晶體在同一側，  
依「被檢測物」反射光強弱或有無來檢測有無「被檢測物」。  
A sensor contains both the emitter and the receiver in one housing,  
It detects the object by the reflected light from the object

Notice of use / 使用注意事項：

1. The size of the detected object / 「被檢測物」的大小
2. The outline of the detected object / 「被檢測物」的形狀
3. The transparency of the detected object / 「被檢測物」的透明度
4. The surface color of the detected object / 「被檢測物」的表面顏色
5. The passing speed of the detected object / 「被檢測物」的通過速度
6. The surface roughness of the detected object / 「被檢測物」的表面粗糙度
7. The space between the detected object and the background / 安裝空間有無背景物
8. The space between the detected object and the detected object / 「被檢測物」連續移動的間隔

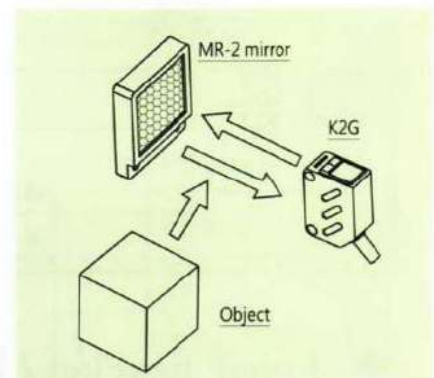


### Mirror Reflex type / 鏡片反射型

感測器的發射晶體與接收晶體在同一側，須在感測器對面安裝反射鏡片；  
當「被檢測物」通過感測器時會遮斷光束即可檢測有無「被檢測物」。  
A sensor contains both an emitter and a receiver in one housing and set a  
mirror on opposed side, It detects the object by the detected object  
interrupting the beam.

Notice of use / 使用注意事項：

1. The size of the detected object / 「被檢測物」的大小
2. The outline of the detected object / 「被檢測物」的形狀
3. The transparency of the detected object / 「被檢測物」的透明度
4. The shiny surface of the detected object / 「被檢測物」的表面亮度
5. The passing speed of the detected object / 「被檢測物」的通過速度
6. The space between the detected object and the detected object / 「被檢測物」連續移動的間隔

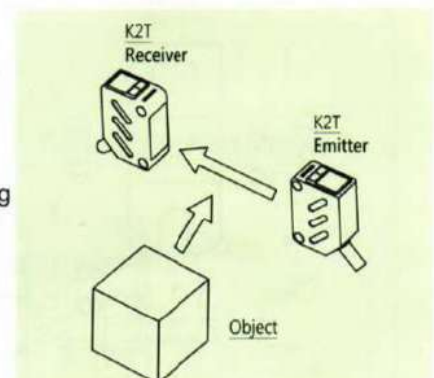


### Thru Beam type / 透過型

感測器分成發射器與接收器相對安裝；  
當「被檢測物」通過感測器時會遮斷光束即可檢測有無「被檢測物」。  
A sensor is separated to an emitter and a receiver that are positioned  
opposite each other, It detects the object by the detected object interrupting  
the beam.

Notice of use / 使用注意事項：

1. The size of the detected object / 「被檢測物」的大小
2. The outline of the detected object / 「被檢測物」的形狀
3. The transparency of the detected object / 「被檢測物」的透明度
4. The passing speed of the detected object / 「被檢測物」的通過速度
5. The space between the detected object and the detected object / 「被檢測物」連續移動的間隔



## ◆ Mirror/反射鏡片

| Mirror / MR-1 | Mirror / MR-2 | Mirror / MR-3 | Mirror / MR-4 |
|---------------|---------------|---------------|---------------|
|               |               |               |               |

## ◆ Connection cable

# M8-4C-□M

| 4P PLUG | COLOR |
|---------|-------|
| 1       | BROWN |
| 2       | WHITE |
| 3       | BLUE  |
| 4       | BLACK |

| 規格    | "A" | "B"    | "C"   |
|-------|-----|--------|-------|
| M8-3m | 3m  | 50±3mm | 5±1mm |
| M8-5m | 5m  | 50±3mm | 5±1mm |

# M12-□M

| 4P PLUG | COLOR |
|---------|-------|
| 1       | BROWN |
| 2       | WHITE |
| 3       | BLUE  |
| 4       | BLACK |

| 規格     | "A" | "B"    | "C"   |
|--------|-----|--------|-------|
| M12-3m | 3m  | 50±3mm | 5±1mm |
| M12-5m | 5m  | 50±3mm | 5±1mm |

# M12-L□M

| 4P PLUG | COLOR |
|---------|-------|
| 1       | BROWN |
| 2       | WHITE |
| 3       | BLUE  |
| 4       | BLACK |

| 規格      | "A" | "B"    | "C"   |
|---------|-----|--------|-------|
| M12-L3m | 3m  | 50±3mm | 5±1mm |
| M12-L5m | 5m  | 50±3mm | 5±1mm |

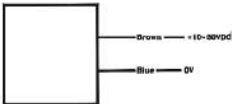
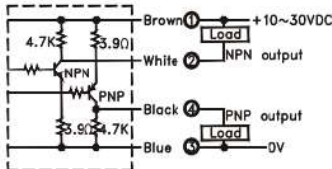
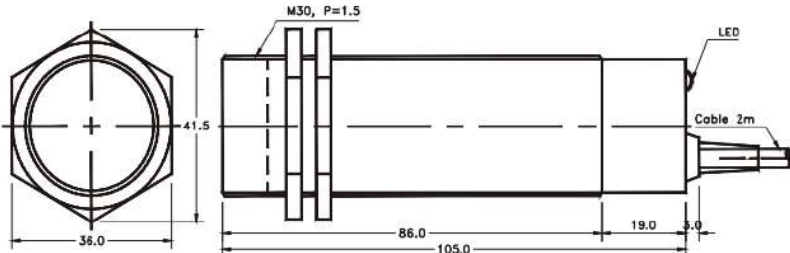
# M30 LONG DISTANCE THRU BEAM TYPE PHOTO SENSOR

**LT**  
series

- ✧ Longer Setting Distance : 150m
- ✧ Enough Setting Margin : Over 50%  
of Setting Distance.
- ✧ Two Way Output :  
NPN & PNP



## Specification

|                             |                                                                                      |  |                                                                                      |  |          |  |
|-----------------------------|--------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------|--|----------|--|
| Model                       | LT-40MX                                                                              |  | LT-80MX                                                                              |  | LT-150MX |  |
| Setting Distance            | 40m+50%                                                                              |  | 80m+50%                                                                              |  | 150m+50% |  |
| Min. Sensible Object        | 10.0 ϕ                                                                               |  | 30.0 ϕ                                                                               |  | 50.0 ϕ   |  |
| Sensitivity Adjuster        | Non                                                                                  |  |                                                                                      |  |          |  |
| Hysteresis                  | < 20% of Setting Distance                                                            |  |                                                                                      |  |          |  |
| Response Time               | 5ms                                                                                  |  | 50ms                                                                                 |  |          |  |
| Operating Voltage           | 10~30VDC ; Ripple < 20% of Peak to Peak                                              |  |                                                                                      |  |          |  |
| Current Consumption         | Emitter < 30mA ; Receiver < 20mA                                                     |  |                                                                                      |  |          |  |
| Output Method               | NPN & PNP Two Way Output                                                             |  |                                                                                      |  |          |  |
| Light Source                | Infrared LED                                                                         |  |                                                                                      |  |          |  |
| Cable                       | Emitter : 2 Cores / 4.2 ϕ X 2m ; Receiver : 4 Cores / 5.0 ϕ X 2m                     |  |                                                                                      |  |          |  |
| Operating Temp./Hum.        | -20° C ~+60 C° ; 35% ~ 95% RH                                                        |  |                                                                                      |  |          |  |
| Housing Material            | Cu Plated Ni                                                                         |  |                                                                                      |  |          |  |
| Output Circuit & Connection | Emitter                                                                              |  | Receiver                                                                             |  |          |  |
|                             |   |  |  |  |          |  |
| Dimension                   |  |  |                                                                                      |  |          |  |

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